

# Municipal Journal

Volume XL.

NEW YORK, FEBRUARY 24, 1916

No. 8



FIG. 1. WIDENING COMMERCE ST., SAN ANTONIO.  
Poles in the Center of the Picture Were Originally Inside the Curb.

## STREET WIDENING IN SAN ANTONIO

Nearly Half a Million Dollars Spent in Widening a Main Business Street—Large Buildings Either Cut Back or Moved Back Bodily—Part of Cost Paid by Property Owners.

By E. A. KINGSLEY.\*

As stated in our issue of February 3, San Antonio, Tex., in 1913 issued bonds for sewers, paving, street widening and other public improvements totaling \$3,450,000. Of this amount \$375,000 was for street widening. In a few instances interested property owners gave the land, but in most instances the city was required to settle by condemnation process or otherwise. Quite a number of the streets were widened, some of them the full length of the improvement and others only in places where it was necessary. The most important street widened was Commerce street, one of the two main business streets running east and west. Commerce street is one of the important streets in the downtown section. From the Alamo Plaza east to the city limits it was a wide thoroughfare, but from Alamo Plaza west to the city market it was very narrow. The main business section extended from the Alamo Plaza to Main Plaza in front of the Court House, a distance of 1,900 feet. The street widths were

from 36 to 50 feet, including 12-foot sidewalks. Several four-story and five-story buildings were located on the street which was widened, the new street width being made 65 feet. Most of the buildings were cut back; some, like the Alamo national bank building, a five-story brick and stone structure, were picked up and moved back bodily. The bank building was never vacated, the tenants doing business during the entire time, although the structure was moved back a distance of 16.5 feet on the west side and 16.7 feet on the east side.

Fig. No. 1 shows a new building on Commerce street, occupied by the San Antonio Drug Company. In the foreground is a building with the front torn out ready to put in the front on the new street line, and in the background is the scaffolding, where the new front has been added, but the scaffolding has not yet been taken down. Fig. No. 2 is a perspective view in the same locality. The old curb line was just in front of the line of telephone poles near the center of the picture. The new curb is plainly shown from 15 to 16 feet back of the present

\*Consulting Paving and Road Engineer for City of San Antonio.



NEAR VIEW OF REMODELED BUILDINGS.

curb line. The total cost of widening Commerce street was in the neighborhood of \$400,000. Of this amount, the city paid the sum of \$221,000 from the bond issue, the balance being paid by the property owners. Several



SAME POINT AFTER COMPLETION OF RECONSTRUCTION.

cross streets, the most of which were originally no wider than a good-sized alley, have been widened and paved, and in one or two instances connecting streets have been cut through to main streets, to avoid congestion of traffic. The entire bond issue for street widening was spent before the work was finished and there are two or three quite important projects that have had to go over until additional funds can be provided.

## STATE CONTROL OF KANSAS WATER SUPPLIES

### Powers and Duties of the State Board of Health in Connection Therewith—Rules Concerning Analyzing Water—Fees Charged.

By C. A. HASKINS.\*

The Division of Water and Sewage of the Kansas State Board of Health was established in 1907 when "The Water and Sewage Law" was passed by the Legislature. This law provides:

That no person, company, corporation, institution or municipality shall supply water for domestic purposes to the public within the state from or by means of any water-works without a written permit from the State Board of Health for the supplying of such water. The application for such permit shall be accompanied by a certified copy of the maps, plans and specifications for the construction of such water-works or extension, and of a description of the source from which it is proposed to derive the supply and of the manner of storage, purification or treatment proposed for the supply previous to its delivery to consumers, together with such other data and information as may be required by the State Board of Health; and no other or additional source of supply shall subsequently be used, nor any change in the method of treatment be made without an additional permit. The supplying of water without a permit shall be deemed a misdemeanor, punishable by a fine of not less than \$25 nor more than \$50 for each offense. Each day shall constitute a separate offense.

The State Board of Health is further empowered to make an investigation of any water supply upon complaint of any municipal or public health officer or upon its own motion, and it may order such changes in the source of supply or the method of treatment as it may deem necessary to safeguard the public health. Permission to discharge sewage into the waters of the State† must be obtained from the board under practically the same conditions as those described above for furnishing water. An appeal from the order of the board may be taken to the District Court of the County within 30 days of the date of the issuance of the order, which court may approve, set aside or modify the order.

Under the rules and regulations for the submission of applications for permits to supply water for domestic purposes or to discharge sewage into the waters of the state adopted by the board, it is necessary to submit copies of general plans, detailed plans, engineer's report, and specifications, in addition to an application on a form furnished by the state, to the engineer for the State Board of Health. If the plans are satisfactory, copies are stamped approved, one copy forwarded to the secretary of the board to be presented for action and placed in the files. The other copies are returned to the city or consulting engineer. After the approval by the engineer, the permit is granted for carrying out the proposed work, which must be recorded in the office of the register of deeds of the county.

The Water and Sewage Law provides for the appointment of an engineer from the faculty of the School of Engineering of the University of Kansas who shall

\*Engineer, Division of Water and Sewage, State Board of Health of Kansas.

†All streams or springs and all bodies of surface and impounded ground water, whether natural or artificial, within the boundaries of the State.



investigate and report upon all matters relating to water supply and sewerage and the pollution of waters of the State that may come before the State Board of Health for investigation or action, and to make such recommendations in relation thereto as he may deem wise and proper and to make such special investigations in relation to methods of sewage disposal and to public water supply and the purification of water as may be necessary in order to make proper recommendations in regard thereto, or as may be required by the State Board of Health.

The salaries of the engineer and his assistants and the director of the Water and Sewage Laboratory are paid by the University of Kansas, and in return these men carry on the teaching work in the Sanitary Engineering Department of the University, amounting to about 12 hours each term. The expenses of all the investigations and other work of the division, except the laboratory work, are paid by the State Board of Health. In carrying out the provisions of this law either the secretary or engineer or both may act for the State Board of Health if it be not in session, when their decisions are approved by the Governor and Attorney General.

From 1907 to 1910 the work of the Division was done by one engineer and a clerk. He was assisted to some extent by the Department of Chemistry and Bacteriology of the University, in analytical work. At the present time, besides the engineer, there are two full time and one part time assistants and a stenographer-clerk.

Until January, 1915, the Water and Sewage Laboratory was supported wholly by the University. Such analyses of water and sewage were made as were requested by the engineer of the division, in addition to a regular yearly analysis of all water supplies in the state and a weekly analysis of some 25 or 30 city supplies using surface water. The 1915 Legislature passed the following law establishing the Water and Sewage Laboratory of the State Board of Health at the University and placing it upon a self supporting basis.

#### RULES AND REGULATIONS OF THE STATE BOARD OF HEALTH FOR THE COLLECTION OF SAMPLES AND ANALYSIS OF WATER.

An Act giving the State Board of Health power to require analysis of waters furnished or sold to the public and to provide rules and regulations for said analysis and collection of samples of water and to prescribe penalties for the violation of said rules and regulations.

Be it enacted by the Legislature of the State of Kansas:

Section 1. That the State Board of Health shall make and publish in the official state paper, rules and regulations for the collection of samples and analysis of water, either natural or treated, furnished by municipalities, corporations, companies or individuals to the public, and shall fix the fees for any services rendered under said rules and regulations to cover the cost of the services, which fees shall be approved by the State Board of Administration before they become operative.

Sec. 2. The analysis of all water required in the rules and regulations shall be made at the Water and Sewage Laboratory of the State Board of Health in the University of Kansas, and the fees collected under the provisions of this act shall be turned into the state treasury for the benefit of said Laboratory of the University of Kansas.

Sec. 3. That every corporation, railway, common carrier, company or individual that shall fail to comply with the rules and regulations prescribed by the State Board of Health under this act shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than \$50 nor more than \$500.

Sec. 4. This act shall take effect and be in force from and after its publication in the official state paper.

Suitable rules and regulations were adopted by the State Board of Health and approved by the State Board of Administration, requiring a complete yearly inspection of all ground water supplies and a collection of a sample from the source of supply for analysis at the Water and Sewage Laboratory, and an additional an-

alysis of a sample to be collected by the city or waterworks official; a complete twice-yearly inspection of all city supplies furnishing surface water for domestic use and tests of the efficiency of operation of method of treatment of such supply, in addition to weekly samples collected by city officials, waterworks officials or other persons authorized by the State Board of Health, to be sent to the Water and Sewage Laboratory for analysis; a complete sanitary inspection twice each year of the source of supply and methods of handling water furnished by common carriers to the public, and an analysis of a sample collected from such source of supply twice domestic use within the State. Fees are charged for the complete analysis of a sample of water collected from the source of supply from which ice is manufactured for each year; a complete inspection of the source of supply and of all plants preparing water for sale in bottles or other containers for domestic consumption, and analysis of samples from each source twice annually; and a service rendered, which go to the support of the Laboratory and are as follows:

#### Ground Water Supplies.

Collection of sample for analysis at laboratory and inspection once each year. Analysis of sample of water twice each year.

Population of Cities	Fees
Under 500 .....	\$12.50 per Year
500—1,000 .....	20.00 per Year
1,000—2,000 .....	25.00 per Year
2,000—3,000 .....	30.00 per Year
3,000—5,000 .....	35.00 per Year
5,000—15,000 .....	40.00 per Year
15,000—and up .....	50.00 per Year

#### Surface Water Supplies.

Inspection twice each year, analysis weekly.

Population of Cities	Fees
Under 1,500 .....	\$30.00 per Year
1,500—3,000 .....	50.00 per Year
3,000—6,000 .....	90.00 per Year
6,000—10,000 .....	100.00 per Year
10,000 and above .....	150.00 per Year

For the inspection and analysis of drinking water supplies by common carrier, \$30 annually is charged for each place where passenger trains are furnished with water to be used by passengers. Fees for inspection and analysis of samples of bottled water, \$30 annually for each source of supply from which water is bottled. Fee for analysis of ice samples, \$30 annually for each source of supply.

It is thought that the fees have been so proportioned that just enough money will be afforded to support the laboratory and pay the salaries of the assistants, with the exception of the director, who is paid by the University. Office room and equipment are furnished both the engineers and the laboratory of the division by the University of Kansas.

Analyses of water and sewage are reported by the director of the Laboratory to the engineer of the division, who in turn reports them to the cities. In case the analysis shows a necessity, as many additional inspections are made by the engineers as may be necessary. There are at present 210 water supplies in Kansas, of which 170 use ground water and 40 use surface water. Most of the cities using surface waters have a population of less than 20,000.

Practically all the surface water supplies in the state are equipped with modern rapid sand filters preceded by the necessary coagulation and sedimentation basins. On account of the small sizes of the cities, they are unable to afford the constant supervision of a chemist and bacteriologist and for this reason this work has been undertaken by the State Board of Health. Alkalinity and turbidity outfits are furnished them at cost and regular daily determinations are made by the operators and the results tabulated on a form sent out from the division.

Once each month these are returned. The results from this work and the weekly analyses of samples from the plant, and the twice yearly inspections of the plant by a representative of the division, enable us to keep a check upon the efficiency of the operation of the treatment.

There are 87 municipal sewer systems discharging sewage into the waters of the state, with about 75 sewage disposal plants. In addition to the work previously described, twice yearly inspections are made of all sewage disposal plants and yearly inspections made of sewer conditions in towns having sewer systems. Occasionally studies have been made of the effect upon the streams of the state caused by the discharge of sewage from the various cities. At the present time an engineer employed by the State Chemical Research Department of the University is investigating the operation of sewage disposal plants in the state under the direction of the engineer of the State Board of Health. It is expected to institute within the next six months a system of regular reports on the operation of such plants by the city official in charge, to supplement the semi-annual inspection by the division.

Very little opposition to the Water and Sewage Law has been encountered in the nine years of its operation. A great many orders have been issued and none have been appealed as is provided for in the law. The Laboratory Fee Law has been in operation only a short time, but practically all of the municipalities, ice manufacturers and bottlers have paid their fees willingly. Some trouble has been encountered with the common carriers, but it is believed that this will be settled satisfactorily before the year is out.

## EFFICIENCY OF MUNICIPAL LIGHT PLANTS

### Comparative Investments, Plant Equipment and Operating Costs of Municipal and Company Plants in Massachusetts.

The Municipal Journal of January 6 presented a summary of plant costs, output, expenses and income of eight of the larger municipal electric light plants in Massachusetts, and the yearly cost of street lamps in the several municipalities for 1914, as compiled by the gas and electric light commissioners. It was shown that rates for electricity supplied to private consumers, for both light and power, by municipal plants are substantially lower than those charged by the companies. The relation of taxation to the general question was discussed.

To indicate in detail the relative efficiency of operation of municipal as compared with company plants in Massachusetts, the accompanying tables are presented. The plants compared are those of like kilowatt-hour output, and operating under fairly analogous conditions. In the comparison the two types of plants fall naturally into for classes—those generating around 12 million kilowatt hours, those generating 2 1-2 to 4 million, those generating around 1 1-2 million, and those producing around 1 million kilowatt hours. In making this tabulation practically all the medium-sized company plants, and nearly all the municipal plants, which generate their own energy and do not purchase electricity, are included.

The prime interest in a study of this sort lies in the element of human efficiency which plant operation discloses through the returns, showing cost of the several items. The price paid for coal is bound to vary with the location of the plants, facilities for housing the supply, etc. Plant repairs are a somewhat variable

### COMPARATIVE OPERATING COSTS, MUNICIPAL VS. COMPANY PLANTS.

	Cambidge El. Lt. Co.	Holyoke Municipal	Lowell El. Lt. Corp.	Lynn Gas & El. Co.	Taunton Municipal	Beverly Gas & El. Co.	Danvers Municipal	Chicopee Municipal	Plymouth El. Lt. Co.	Westfield Municipal	Gloucester Electric Co.	Amesbury El. Lt. Co.	Reading Municipal	Concord Municipal
Kw. hrs. generated	15,205,000	13,455,000	13,097,000	12,755,000	4,155,600	2,575,000	2,532,000	2,092,000	1,979,000	1,659,000	1,591,000	1,279,000	909,600	861,940
Cost of fuel	\$61,339	\$75,326	\$87,316	\$58,800	\$27,610	\$21,109	\$21,293	\$9,716	\$12,788	\$14,778	\$11,724	\$9,337	\$7,928	\$11,320
Oil and waste	1,834	589	908	1,899	860	607	633	153	629	494	673	247	282	213
Water	3,990	417	405	4,045	417	607	633	153	629	494	673	247	282	213
Station wages	41,728	29,209	25,338	24,918	16,355	11,887	7,905	6,060	8,508	6,853	5,472	5,472	8,235	17,437
Station tools	370	444	1,731	366	2,234	312	312	204	135	627	431	306	257	48
Station repairs	4,176	4,290	4,176	6,511	2,271	19	312	204	135	627	431	306	257	48
Steam plant repairs	2,536	4,290	8,190	19,310	2,439	2,470	1,343	343	861	1,765	1,473	165	66	73
Electric plant repairs	6,146	4,290	8,190	19,310	2,439	2,470	1,343	343	861	1,765	1,473	165	66	73
Total manufacturing costs	124,931	137,322	129,293	117,652	50,359	37,017	34,313	17,194	23,884	25,344	27,023	15,646	17,094	20,864
Tons coal burned	15,251	16,555	17,299	16,589	6,199	4,341	4,463	2,353	2,979	3,357	3,100	2,000	1,989	1,989
Cost of coal	\$4.02	\$4.41	\$4.70	\$3.54	\$4.45	\$4.31	\$4.75	\$4.12	\$4.25	\$4.98	\$3.85	\$4.73	\$4.40	\$4.32
Total operating expenses	\$299,473	\$313,141	\$302,000	\$313,141	\$77,607	\$84,000	\$84,153	\$42,018	\$55,786	\$59,500	\$72,506	\$30,719	\$33,537	\$32,637
Total op. exp. excluding taxes, from	\$244,064	\$251,215	\$251,215	\$262,722	\$77,607	\$74,274	\$74,153	\$42,018	\$51,732	\$59,500	\$72,506	\$26,356	\$33,537	\$32,637
Companies	\$0.016	\$0.0135	\$0.019	\$0.021	\$0.018	\$0.029	\$0.0174	\$0.02	\$0.0267	\$0.023	\$0.04	\$0.0206	\$0.037	\$0.036
Station wages, per kw. hr. generated	\$0.0027	\$0.0022	\$0.002	\$0.002	\$0.004	\$0.0046	\$0.003	\$0.003	\$0.004	\$0.004	\$0.006	\$0.0043	\$0.009	\$0.008
Total mfg. costs per kw. hr.	\$0.008	\$0.009	\$0.01	\$0.01	\$0.012	\$0.014	\$0.013	\$0.008	\$0.012	\$0.015	\$0.017	\$0.012	\$0.019	\$0.021

\*Add \$14,338 for water bought of Holyoke Water Power Co. for operating water turbine auxiliaries. †Deduct for sewage pumping about 8½%, leaves \$6,860 for station wages and \$19,091 as electric manufacturing costs. ‡Screenings. §Coal.



quantity from year to year. A real criterion of economical operation is revealed in station wages, and here, it will be noted, the municipal plants make a remarkably good showing. Especially is this true when it is considered that the law imposes an 8-hour day for most municipal employees, while private plants are not so bound.

An important fact which should be considered is that at least four of the eight company plants here given are located on the seaboard, on tidewater, and enjoy the lower freight rates which water competition gives, while none of the municipal plants is thus favorably situated. This circumstance puts the companies to an advantage of several hundred dollars each in cost.

To show the relative equipment, a table is subjoined presenting in brief the boilers, engines and generators or turbines installed. Nearly all the plants, both company and municipal, are modern steam turbine plants. The figures are taken from the 1915 return to the State regulating and supervising board:

## PLANT VALUES AND INVESTMENTS.

To make the study more complete, as indicating the low investment costs represented by municipal plants in Massachusetts, as compared with corporation plants, tables are presented herewith. The figures are from returns made to the State Gas and Electric Light Commission for the year ending June 30, 1914, and cover book values of the principal elements which make up the producing plants. The municipal plant assets given represent actual expenditures, less depreciation charges, and the book values of corporation plants for the same year are given in parallel form. The plants of both types are those generating under 14 million kilowatt hours a year, no municipal plant in Massachusetts being a larger producer than this amount at the present time. The plants represented are practically all the plants in the State which generate their own supply of electricity which came below the 14 million k.w.h. output. Nearly all the smaller companies and municipalities having plants and

## PLANT VALUES AND INVESTMENTS PER OUTPUT.

	Kw. hrs. generated	Real Estate.	Steam Plant	Electric Plant	Electric Lines	Transformers and meters	Total value of plant	Total value excluding lines, transformers and meters	Total invest- ment per 1,000 kilowatt hours generated	Investment per 1,000 kw. hours, excluding lines, transformers, meters	Population served
City of Holyoke.....	14,000,000	\$134,502	\$254,785	\$161,530	\$197,861	\$127,582	\$888,817	\$563,374	\$63.50	\$40.25	58,000
Edison Co., Brockton....	13,990,000	372,159	\$429,899	327,393	633,482	140,496	1,903,429	1,129,451	143.21	80.65	94,000
Lowell El. Lt. Corp'n....	12,786,000	287,481	451,572	262,581	711,910	223,060	1,936,604	1,001,634	151.50	78.30	125,000
Cambridge El. Lt. Co....	12,404,000	191,937	377,817	134,165	483,279	105,392	1,292,040	703,916	104.16	56.65	105,000
Lynn Gas & Elec. Co....	12,005,000	221,557	296,685	225,459	955,470	146,132	1,845,303	743,701	153.77	62.00	105,000
(Electric Dept.)											
City of Taunton.....	3,652,000	{ 53,558	124,909	57,686	67,202	54,198	362,090	240,690	99.15	65.90	34,000
		{ 14,637									
Leominster El. Lt. & Pr. Co.....	2,866,000	29,988	72,729	48,295	132,412	22,756	306,180	151,012	106.83	52.70	19,000
Allteboro Steam & El. Co.	3,444,000	76,353	135,406	20,775	63,473	35,294	331,301	232,534	96.20	67.50	19,000
Beverly Gas & El. Co. (Electric Dept.).....	2,498,000	114,153	85,026	75,956	375,589	33,776	684,500	275,135	274.00	110.10	22,000
Town of Danvers.....	2,335,000	18,375	38,207	13,936	42,793	13,530	132,891	70,568	56.90	30.20	10,000
City of Chicopee.....	1,494,000	23,833	89,066	61,200	49,230	33,283	246,612	164,099	165.00	109.40	26,000
Gloucester El. Lt. Co....	1,538,000	83,206	76,684	60,376	208,620	63,751	492,637	220,266	320.30	143.20	30,000
Town of Westfield.....	1,459,000	32,306	46,181	27,558	33,291	20,597	159,933	106,045	109.60	72.70	16,000
Amesbury El. Lt. Co....	1,318,000	24,721	49,076	34,260	92,122	21,683	221,862	108,057	167.58	82.00	12,000
Town of Reading.....	1,019,000	11,592	30,699	17,912	71,502	22,611	154,316	60,203	151.43	59.10	6,000
Clinton Gas Light Co. (Electric Dept.).....	1,016,000	28,918	24,827	23,132	110,500	11,592	199,069	76,977	194.95	75.80	15,000
Buzzard's Bay El. Co....	975,000	18,699	35,264	13,743	97,495	2,998	168,199	67,706	172.50	70.50	12,000
Town of Marblehead.....	875,000	25,577	25,217	18,729	21,627	27,670	118,820	69,523	135.80	80.00	8,000
Town of Concord.....	828,000	5,295	25,681	13,290	38,197	12,552	95,015	44,266	114.75	53.50	7,000
Gt. Barrington El. Lt. Co.	831,000	50,000		42,708	53,341	22,077	168,126	92,708	202.00	111.50	8,000
Town of Mansfield.....	710,000	11,009	43,422	16,962	15,657	12,630	99,653	71,393	140.00	100.00	6,000
Town of N. Attleboro....	690,000	10,730	23,760	14,920	26,780	19,364	95,554	49,410	138.50	71.60	9,000

\*Auxiliary steam plant. †Wharf.

## PLANT EQUIPMENT, MASSACHUSETTS MUNICIPAL AND COMPANY PLANTS.

	Boilers	Horse Power	Engines	Horse Power	Turbines or Generators	Horse Power
Cambridge El. Lt. Co.....	B. & W.....	3,200			G. E. turbine.....	833
	McIntosh & Seymour.....	5,250			Westg. turbine.....	2,250
					Generators.....	6,600kw
Holyoke Municipal.....	Holyoke, Walsh, and B. & W.....	5,000			G. E. and West. turbines.....	13,561
Lowell El. Lt. Corp'n.....	Scannell & B. & W.....	4,123	Haines, Brown, Ames and Woodbury.....	4,000	Water turbines.....	1,120
Lynn Gas & Elec Co.....		3,900	Allis.....	3,700	G. E. turbine.....	2,000
					G. E. generators.....	3,950kva
					G. E. turbines.....	3,075kw
					G. E. turbine.....	2,300
Taunton Municipal.....	Heine.....	2,000	2 McIntosh & Seymour.....	625	Allis-Chalmers turbine.....	2,300
Beverly Gas & Elec Co.....	B. & W.....	1,123			3 G. E. turbines.....	1,500kw
Danvers Municipal.....	Cunningham.....	550		250	3 G. E. generators.....	1,000kw
	Ball, Buckeye, Providence, McIntosh & Seymour.....	1,285				
Chicopee Municipal.....		969			3 G. E. turbines.....	2,025
Plymouth El. Lt. Co.....	B. & W. & Robb.....	1,000	2 Harris Corliss.....	1,000	2 G. E. generators.....	720kw
Westfield Municipal.....	Bigelow and Heine.....	708	Harrison tandem compound.....	140	Westg. turbine.....	1,000
Gloucester Electric Co.....	B. & W.....	1,000	G. & G. Cooper.....	750	G. E. turbine.....	800
Reading Municipal.....	Kendall & Hodge.....	375	Rice & Sargent.....	900	G. E. turbine.....	670
Amesbury El. Lt. Co.....	Cunningham.....	500	Allis & McEwen.....	630	Curtis turbines.....	750
Concord Municipal.....	3 Holyoke.....	810	Rollins, Rice & Sargent.....	1,320	W. E. and G. E. generators.....	1,000kw
			Westinghouse.....	300	G. E. turbine.....	500kw
			Kerr.....	750	West. turbine.....	500kw
					Allis-Chalmers turb.....	500kw

distributing 500,000 kilowatt hours a year or less, now purchase their energy supply from hydro-electric generating companies, or from some large steam generating plant, it being found more economical than to generate in the small quantities.

From the comparison of investments it will be noted that book values of various items constituting the municipal plants is in most cases much less than for companies. The investments are also compared on the basis of kilowatt hours generated, i. e., the actual work done with the "tools" or machinery employed. By this means, a fairly clear basis is provided of judging the comparative efficiency in output as represented by dollars invested in plant. At the same time, the figures indicate the burden of fixed charges which is being carried in each case by the consuming public.

It should be pointed out that as a rule the territory supplied by company plants embraces several municipalities, while publicly-owned plants supply only their own city or town. This makes for a disparity of distributing conditions which is taken into account, and to correct which, figures of plant value exclusive of lines, transformers and meters, are given, with the investment per 1,000 kilowatt hours excluding those items. The latter figures still indicate a much lower plant investment in municipal electric works than in those of private corporations.

The conclusion to be drawn from this study is that municipal plant costs entail a very light burden on the public, in most cases; that the public is reaping large returns from public investment in these utilities, and that advocates of municipal ownership may boldly champion a public policy which not only saves the public money, but which also stimulates civic spirit and enlists the interest of engineers and other trained men, in the community where such a plant is located.

### CONTRACTION JOINTS IN CONCRETE BASE.

Editor, Municipal Journal,  
New York.

Dear Sir: The writer would appreciate the favor if you would publish the following in your magazine at some not too distant date, and would like to hear from some of your readers as to their opinions regarding the subject, as well as to gain the idea of yourself.

We have been laying considerable asphaltic-concrete paving in this city and are contemplating some more, and the only regret we have ever experienced with this type of pavement is the fact that it is almost impossible to secure a surface that will not show some cracks after the first winter. I have made a careful examination of these cracks and in all cases have found a corresponding crack in the concrete base directly below and paralleling the crack in the top. This has led me to believe the fault is not so much with the asphaltic mixture as with the base. I also believe that with the wide range of temperature with which we have to deal in this climate (40 below to 110 above) it is very necessary to give special attention to the ductility and penetration of the asphaltic cement in the mixture. We ran our cement at a penetration of about 55 to 60, but I believe on my next job I will raise it about 5 points. We used the best of sand and Joplin flint in the mixture, which gave a very uniform grading under the Topeka specifications. The asphalt was Bermudez fluxed with Kansas oil. Our concrete base was 6 inches thick, composed of a mixture of local sand and gravel, the latter being of a size averaging about 1/4 inch or pea-gravel. It was a fairly clean and very hard-grained aggregate, the sand being a silica, pure white crystals. We mixed it in the proportion of 1 part cement to 6 parts of the combined sand and gravel, which was a fairly rich mixture, as our sand shows only 28 per cent voids. It is possible that a richer mixture might have less tendency to crack. Our sub-base was in most places a sandy soil, well drained, and should not cause any heaving of the concrete.

The proposition on which I desire argument is this: Would it be advisable to place contraction joints in the con-

crete base of the pavement? I believe it would. My idea is to place a beveled plank in the concrete about every 40 feet on a 30-foot pavement, the plank to be a 2x6 beveled to about 3/4 inch on one edge and 1 1/2 inches on the other, laid of course with the wider edge up. The concrete would be levelled off even with the top of this plank on both sides, then when the surface gang reached that point the plank would be removed, or it might be removed before that time as soon as the concrete was sufficiently set, the space to be filled with a mixture of asphaltic cement and sand, heated to about 250° F. and well tamped with hot tamper. Then the wearing surface would be run across this joint the same as at any other point, the roller giving it an even surface.

The question is, Would this tend to cause a crack in the wearing surface when the concrete contracted in cold weather? If it did, it surely would make a crack square across the street and not in the irregular and unsightly manner that it ordinarily does.

Very truly yours,

H. H. TRACY,

City Engineer, Norfolk, Neb.

### RESURFACING WITH CONCRETE.

Editor of Municipal Journal,  
New York City.

Cincinnati, O.

Dear Sir:

I have been interested in reading the several articles which you have published on resurfacing old macadam roads and street repair generally, and would like to add to these my views in this connection, derived from experience in a number of towns in this vicinity.

Macadam streets and roads, if properly maintained, are the most economical and desirable for ordinary traffic. The great objection to the macadam road is that it never is systematically maintained by the governing authorities in cities and villages and since the advent of the automobile it is not economical to try to maintain water bound macadam roads. The bituminous macadam road is an improvement on the water bound one and will withstand automobile traffic reasonably well, but requires repairs and re-treatment every few years, the time depending upon the amount of traffic. It is my judgment that macadam streets should be gradually eliminated and concrete streets or roads constructed so far as the financial resources of the corporation will permit. Taking the old macadam streets one at a time, and replace them with concrete, using the old stone after it has been forked for the foundation for the concrete streets, and any surplus over and above that necessary for the foundation could be used to fill the holes and ruts on other macadam streets that cannot be reconstructed for a few years. The result would be a street that, properly constructed, would require practically no repairs. The cost of maintenance of the old macadam streets would thus decrease each year, so that the funds that formerly were available for repairs could be used in new construction so far as they would go and each succeeding year more permanent streets could be constructed until eventually the old macadam streets would be a thing of the past. On a considerable number of concrete streets constructed in Norwood, Hyde Park, St. Bernard and other cities in this vicinity during the past few years under my supervision, not one dollar has been spent for repairs up to the present day.

The average cost of water bound macadam in this vicinity is \$1.00 per square yard; of bituminous macadam, \$1.25 per square yard, and of concrete, \$1.25 per square yard. The cost of a concrete street can be brought to about the same as that of a water bound macadam if the width of roadway for the concrete street be reduced from 30 feet between curbs to 21 or 24 feet, which is ample widths for streets not occupied by street railway tracks.

The greatest objection raised by councilmen and property owners to concrete streets is that they cannot be torn up for water, gas, sewer and other connections. This objection is well taken, but easily answered, by laying all pipes and connections before the street is laid, or if they cannot be laid until after the street is built, then the line of pipe can be laid in the sidewalk space on either side of the street.

The money expended repairing and resurfacing old macadam streets could be better applied to paying the interest on the bonds that could be issued, the principal being applied to the payment of the cost of constructing permanent concrete streets.



A municipality has been expending say \$5,000 a year on macadam repairs, could issue bonds in the sum of \$100,000, using the money that was formerly expended on street repairs to pay the interest on the bond issue. Concrete streets can be constructed at a cost of between \$15,000 and \$20,000 per mile. Five or six miles of concrete could be constructed with said \$100,000, or by assessing one-half the cost of the improvement on the abutting property own-

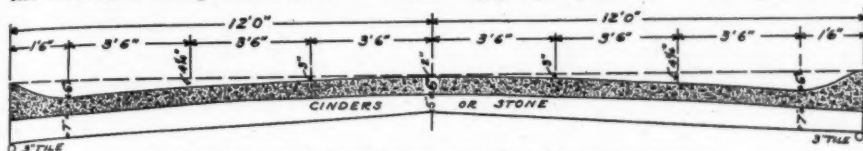
ers another \$100,000 could be raised which would enable the corporation to construct ten or twelve miles of concrete streets.

The large majority of the smaller cities of between 5,000 and 10,000 population and the villages do not have more than ten or twelve miles of improved streets within their corporate limits and by adopting this method would, within a few years, have all of their streets improved with a hard

surface, free of dust in dry weather and mud in wet weather and with practically no expense for repairs, cleaning and sprinkling.

Very truly yours,

J. C. STEWART.



SECTION OF CONCRETE STREET 24 FEET WIDE.

## PRACTICAL STREET CONSTRUCTION

### PLANNING THOROFARES

#### Provisions for Pedestrian Traffic—Lanes and Steps— Squares at Traffic Centers—Opening New Thorofares Through Old Sections.

In the foregoing, vehicle traffic has been considered almost to the exclusion of pedestrian. One reason for this is that vehicle will largely exceed pedestrian traffic where the distances traveled exceed say one mile. For distances not exceeding this, however, pedestrian traffic should be borne in mind, and the fact that in many and perhaps the majority of cases pedestrians prefer a short though steep route to a roundabout one; consequently pedestrian thorofares should ordinarily be provided which are as direct as possible, even though such thorofares should be almost or quite impracticable for vehicles. In fact, in a number of such cases no provision whatever for vehicles is made, but the thorofare takes the form of a lane or a flight of steps; or such are used as short cuts between the loops of a winding roadway. One has only to visit the hillsides of almost any of our cities and towns to find illustrations of this. Where these have not been built up, there will be found paths worn across the vacant land by the daily passage of

scores or hundreds of pedestrians, while in many cases steps of wood and sometimes of concrete or stone are provided for their accommodation. Lanes form an important and attractive feature of many European cities, and many are to be found in Boston and other of our older cities; but they have been almost entirely omitted in the newer cities in this country; and yet, where used they are found to be greatly appreciated by the citizens, the expense of them is very small, and where even a small amount of pains is taken to grow trees and shrubbery or hedges along them they add a picturesqueness to the general street layout. Flights of steps are more common, but they are too often treated as though mere temporary make-shifts, only crude wooden steps being provided and not kept in repair.

Having provided a sufficient number of routes for both present and future thorofares leading in all directions, the treatment of these as they approach within a few blocks of the traffic center should not be overlooked, but here ways for dispersing the traffic from each one of the routes around the center (where congestion is likely to occur) should be provided for by short diagonals or other contrivances for persuading traffic which does not wish to go *to* but whose aim is to pass *through* the traffic center, to make a detour around it instead.



Courtesy, Sylvester Q. Cannon, City Engineer, Salt Lake City.

CONCRETE STEPS FOR CARRYING PEDESTRIAN TRAFFIC UP A STEEP HILL.  
Fourth Avenue, Salt Lake City. Vehicles Can Ascend by Roadway at Left.

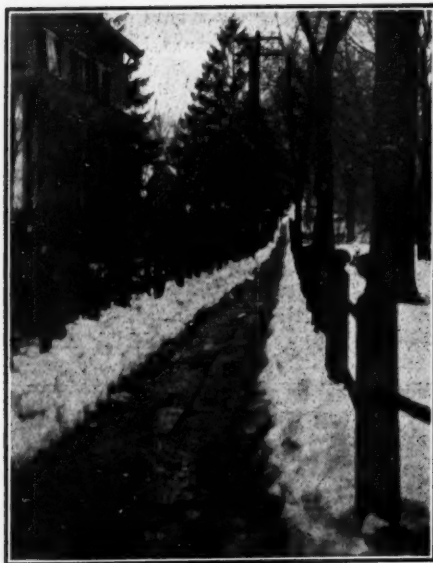


FIG. 2. LANE IN MONTCLAIR, N. J.

This can be effected both by presenting slight obstructions to traffic just outside of the business centers, and also by introducing short cuts at these points from each group of thorofares to those leading in other directions. Methods of accomplishing this by "ring" streets or their equivalent have already been referred to.

At the best there will, however, be more or less passing through the traffic center, and considerable thought can well be devoted to designing this center so as to provide for the circulation of traffic through it with the least congestion and confusion. For this purpose an open space with a large paved area which permits the passing of traffic in long sweeping curves from one thorofare to another is of great advantage. There will be certain more or less triangular areas which will lie outside of such traffic routes which can be utilized for parking automobiles, for monuments, drinking fountains, small parks, etc. (The matter of providing space for parking automobiles is becoming increasingly important and will be considered later.)

The problem of street layout presents itself generally in the form of readjustment of existing streets to reduce traffic congestion or meeting other unsatisfactory conditions, or in planning extension of existing cities. In many cases a satisfactory solution of the latter involves the securing of a new thorofare to the business center through the old part of the city. In selecting such thorofare existing streets will of course be used so far as possible. If the new section lies at the corner of an original rectangular layout, a diagonal may well be provided to serve it; but this need not start at the center, where it would have to be cut out of valuable property by razing expensive buildings, but will be practically as serviceable if started several blocks from it. In fact, there is advantage in bringing it only to the edge of the business district and thence following an existing main thorofare into and through such district; this reduces traffic congestion (as previously explained), saves largely in the cost of the new construction and especially of purchasing private property for right of way, and adds little to the distance to be traveled. For instance, if in Fig. 3 an addition is to be laid out beyond A, the diagonal AC would save 29.3 per cent of the distance to the center by the rectangular system; but if

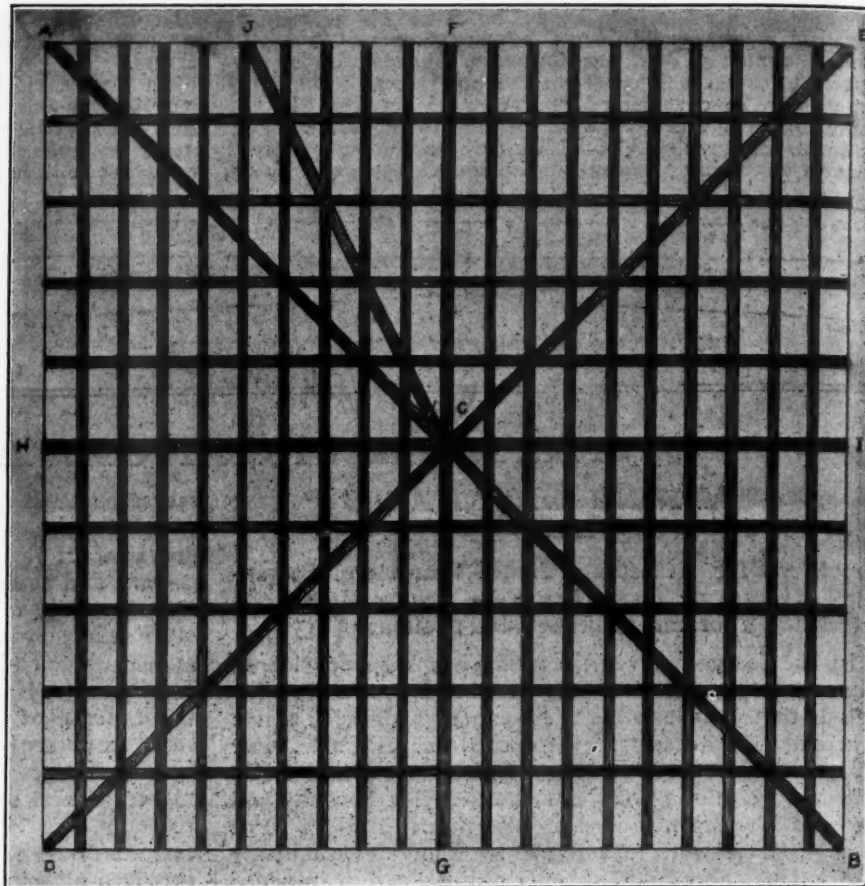


FIG. 3. RECTANGULAR SYSTEM WITH DIAGONALS.

we start the diagonal four blocks to the left of C on the main thorofare CH, and run from there to A, the distance from A to C is 21.7 per cent shorter than by the rectangular systems; in other words, we save practically three-fourths as much distance as though we ran the diagonal straight to the center. If traffic in the thorofare CH would be congested by this, the diagonal could stop at the street just above CH, and this street from there to the center be used as a thorofare.

While it is generally advisable to reserve as public property all routes which will, for all time, be needed as thorofares, the advisability of purchasing built-up property for this purpose in anticipation of future needs is more questionable. In the first place, it is impossible to foresee exactly the developments of the future in growth of business and traffic, and it is possible that if the selection of location of a new thorofare be made now, it will not be as suitable to the needs of the future as if delayed until the need actually arises. For this reason, delay is worth risking an increase in cost of perhaps 10 per cent to even 50 per cent or more. Again, it is generally considered that the present generation should not be taxed too heavily for the benefit solely of a coming generation. Finally, the saving is not so great as it appears. We sometimes see such statements as: "If we had only looked ahead and bought this property thirty years ago we could have obtained it for one-third what it will cost now." But if the money had been placed in the bank at 4 per cent interest thirty years ago it would now be worth three and a quarter times as much, and the city has really saved money by waiting. In fifty years money at 4 per cent will increase sevenfold.

A practical continuous thorofare can often be made from non-continuous short streets, all leading in the general direction desired, by cutting off corners of blocks so that these short streets can be connected by long-radius



reversed curves. This expedient can often be used where cutting through a new street would be impracticable.

Having provided the general lines for thoroughfares, we are then ready to consider their width and subdivisions, and these will be considered in the following installments of this series.

### PITCH-SAND MASTIC FILLER

For Stone Block and Brick Pavements—Mixed in Concrete Mixers—Fineness of Sand and Mixing Temperature Important.

BY JOHN S. CRANDELL\*

In an article in Municipal Journal, February 4, 1915, entitled "Pavements with Pitch Filler," the development and use of pitch-sand mastic filler was gone into at some length. Since the publication of that article many thousands of square yards of stone block and brick filled with pitch-sand mastic have been laid in this country. The method previously described was that used in New York City where the mastic is mixed by hand and poured into the joints.

In most of the mastic-filled pavements laid during 1915 outside of New York City a different method of filling the joints has been used. It was found that when the joints were poured the filler slowly settled in them, making it necessary to repour some of them. Further, upon examination of samples removed from the joints it was noted that not enough sand had been mixed with the pitch. This latter resulted from carelessness on the part of the workmen, who did not mix enough sand into the pitch, rather than from the sand settling out.

To correct these two shortcomings it was decided to mix the sand and the pitch in a batch concrete mixer, and apply the matrix so made by flushing it over the surface of the street and forcing it into the joints with squeegees. By using a concrete mixer, correct proportions of sand and

\*Formerly Professor of Highway Engineering, Pennsylvania State College.

pitch can be readily obtained and a homogeneous mastic is certain to result.

The first job on which this method was tried was a brick street in Cleveland, Ohio, and the second was in Columbus, Ohio, a few days later. Pitch was heated in the usual pitch kettle, and fine lake sand was heated on a plate heater.

A suitable measuring can was provided to measure out the pitch and a bottomless bucket was used for measuring the hot sand into a wheelbarrow from which it was dumped into a 3 cu. ft. mixer. A wheelbarrow load of

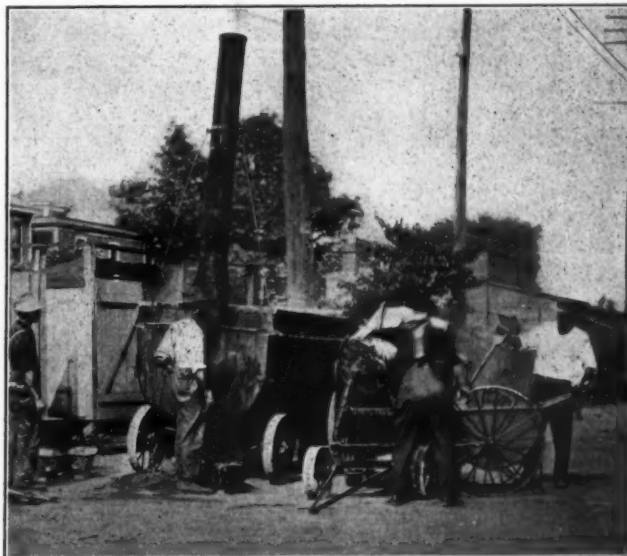


FIG. 1—EQUIPMENT FOR MIXING PITCH-SAND FILLER. Tar kettle and "Big and Little" mixer.

hot sand was first run through the mixer to heat up the drum, and was followed by a measured batch of sand into which was dumped an equal volume of hot pitch. The two materials were thoroughly mixed in about 2½ min-



FIG. 4—OPEN SQUARE, DISTRIBUTING TRAFFIC FROM TWO INTERSECTING THOROUGHFARES. Amalienberg Platz, Copenhagen. The paths followed by the vehicles in crossing the square are plainly shown by the light streaks.

utes, when they were turned into a two-wheeled cart, such as is used for cement grout. The cart was run to the beginning of the pavement and its contents dumped, *all at one time*, onto the bricks. Three men with squeegees made of old automobile license numbers fitted with handles quickly pushed the mastic into the joints. The second batch was dumped onto the same place that the first one occupied, and the mastic was then pushed or squeegeed ahead to fill new joints. The object of dumping each batch on the spot just previously filled was to fill up any joints that may have been only partially filled by the previous batch.

As soon as the joints were full, the surface was covered with a thin coat of sand, screenings or other suitable materials which the traffic forces into the coating of mastic left on the bricks. A mat coat is thus formed which lasts for at least a season, makes a noiseless, non-slipping street, and adds a year's life to the brick by protecting them from traffic.

Ontario street, Cleveland, Ohio, one of the busiest streets in that city, was paved in the fall of 1915 with sandstone blocks and filled with pitch-sand mastic. The method outlined above was used but with certain refinements which made for lower costs. Pitch was brought hot to the street in tank wagons, and hot sand was obtained from a local asphalt plant. Thus the heating of the materials on the job was done away with. Fig. 2 shows the layout of the apparatus. The hot sand was dumped onto a wooden platform which could be dragged from place to place. Pitch was taken from the tank wagons to the mixer in a specially designed two-wheel cart which was made to hold just the right amount. The can on the cart was fitted with a cover to prevent workmen from being splashed with hot pitch. Sand was measured out into the wheelbarrow. A canvas cover was over the sand all the time. With this simple protection the sand was hot enough to work after 6 to 8 hours on the platform.

Seven men, including the foreman, made up the gang. They were easily able to keep up with the pavers. As soon as the joints were filled, the surface was covered with slag screenings and immediately the street was opened to traffic.



FIG. 3—POURING FILLER FROM PUSH CART AND SQUEEGEING INTO JOINTS.



FIG. 2—DISCHARGING PITCH-SAND FILLER FROM MIXER TO PUSH CART.

The pitch used was a straight coal tar product with a melting point of about 180 degrees F. ( $\frac{1}{2}$ -inch cube method). The sand was that used for sheet asphalt work. As it was a little coarser than that used on the brick work already mentioned, the proportion of pitch and sand was changed from equal volumes to 4 parts of pitch to 3 parts of sand. This worked better and was accordingly used for most of the joints. It will always be found that the finer the sand the more of it can be used, and the less it will settle out between the time of mixing and applying. Limestone dust is probably the best material to use when it can be had at a reasonable price.

It is essential that the following precautions be strictly taken: Use fine sand, the finer the better, and do not use it at a lower temperature than 300 degrees F.; pitch should not be over 300 degrees F.; keep a thermometer in the pitch kettle all of the time; thoroughly mix the two materials; work rapidly; do not try to fill a water soaked pavement; sweep the surface before beginning, otherwise the mastic mat may not stick; cover with sand or screenings.

Pitch-sand mastic has recently been successfully used in Canton, Ohio, on brick, and in Columbus, Ohio, on an experimental stretch of Durax. It seems to be especially well adapted for the latter pavement. The addition of sand to pitch has been a step forward toward the ideal filler, and the fact that pavements so filled may be immediately opened to traffic and may be cut and patched without waiting for the filler to cure or set up is an important one in all busy cities and towns. A mastic filler is tougher, more resistant to traffic and less susceptible to changes of temperature than bituminous fillers without sand.

The success of pitch-sand mastic depends on careful workmanship, but if due care is exercised and the work is carefully inspected, and attention is directed to all details, a joint filler will be obtained that will, in the writer's opinion, be better suited to modern conditions than any that has so far been produced.



# Municipal Journal

Published Weekly at  
50 Union Square (Fourth Ave. and 17th St.), New York  
By Municipal Journal and Engineer, Inc.  
Telephone, 2805 Stuyvesant, New York  
Western Office, Monadnock Block, Chicago

S. W. HUME, President  
J. T. MORRIS, Treas. and Mgr. A. PRESCOTT FOLWELL, Secretary  
A. PRESCOTT FOLWELL, Editor

## Subscription Rates

United States and possessions, Mexico, Cuba.....\$3.00 per year  
All other countries..... 4.00 per year  
Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

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Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

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### Paving Contractors in Milwaukee.

The cost of the first or original paving of a street in Milwaukee with pavement on a concrete foundation (which is termed permanent pavement) is assessed against the abutting property, except that the city pays for the street and alley intersections out of the general fund. It has been the practice in the past to pay for this paving by issuing paving certificates to the contractors against the abutting property, which certificates were redeemable at the time of the next tax collection.

By a recent enactment of the legislature, the city is empowered to raise money for this purpose by issuing short-time improvement bonds, and this is to be done and contractors will this year be paid in cash for the entire amount of the paving. The first paving bids for work to be performed in 1916 were opened a short time ago and it was found that on sandstone and brick pavements the prices were somewhat lower than last year, the difference being about 3 or 4 per cent, although the cost of material is higher and it appears that the cost of labor will this year be considerably higher than last. The bids for asphalt pavements were about 2 per cent higher than last year, whereas commissioner of public works Fred G. Simmons (to whom we are indebted for this information) believes that the increased prices of labor and material would have caused a 6 to 10 per cent advance if it had not been for the installation of this cash payment method.

This experience of Milwaukee is an illustration of what we have claimed would happen in almost every case if the change were made of paying contractors in cash instead of in substitutes therefor, which generally involve some trouble to the contractor and frequently the deferring, sometimes indefinitely, of his securing the actual cash for work done.

This is not the only way in which many cities can make municipal work more inviting to contractors. In some, especially of the larger ones, it requires from six to twenty-four months to collect for work done or material furnished because of the enormous amount of red tape involved. Unless a contractor has a friend in the administration possessed of the ability to expedite matters, such a condition renders municipal work undesirable. This abundance of red tape is favored by those city employes who make a little "on the side" by such expediting, and by the favored contractors; but it almost invariably results in higher cost of contract work.

A city which conducts its affairs with business men in the business-like way to which they are accustomed will find plenty of competitors for its custom, for its rating is A1; but if they complicate transactions with unfamiliar conditions and not only defer payments unduly but ultimately pay in notes or orders, they must expect to suffer in prices offered.

### Economy and Municipal Employees.

During the past year several hundred engineers have been dropped from the various municipal departments of New York City, and numbers of other employes also. Boston within a month has dropped eighteen engineers from the Department of Public Works by abolishing their positions; and Baltimore ten days ago discharged 210 men from the Water Department. In each of these cases the reason given was economy and efficiency, and in a number of other cities the forces of municipal employes are being reduced on the same grounds.

As is only natural, the friends of those who have lost their positions condemn these acts. It is difficult for those not intimately acquainted with the departments and the work performed by them to judge whether the work can be conducted as satisfactory with the reduced force as was done before; but if it can, there would seem to be no just ground for complaint, but rather praise should be given for the economy and increased efficiency secured in the work of the reduced force. The results following these reductions furnish the only reliable test of their justification.

But while reducing the force may be commendable, the manner of doing so may not be. Those dropped should be the ones of least value to the service, and this value consists to a considerable extent of experience as well as ability and faithfulness. Of those dropped in the cities referred to a considerable number are said to have been in the service from ten to thirty years. If they were men who had "made good" at all, as public employes, their experience should be of great value to the city and they should have been retained if it were at all possible to do so. (Successful contractors retain many good foremen in their employ through the lean months because they can not afford not to have them available when there is use for them.) But if a man has not made good, the longer he has been given a chance to do so without succeeding, the sooner he should be discharged.

### Rising Prices on Materials Used by Municipalities.

It is reported from Columbus, O., that the price bid a few days ago for soda ash for the water purification plant was \$62 a ton, whereas last year the city paid about \$15. The war is blamed for the increase. As the city re-

quires 1,800 tons, this means an additional cost of about \$85,000. The price of chlorine and of sulphate of alumina also have risen very considerably.

Lead also is much higher in price. Last week the minimum wholesale price in New York was 6.30 cents a pound, as compared with 3.85 cents a year ago. White waste has risen to \$12.00 a bale, which cost \$7.20 only a few months ago. Pig iron is \$20.00 as compared with \$14.25 a year ago, and steel billets have risen 70 per cent. in price in twelve months.

Other city departments also are finding prices rising. Fiber used for street brooms costs Springfield, O. 10 per cent more than a year ago. Rubber has increased 34 per cent in price, nearly 4 per cent within the past seven days, and rubber hose has gone up correspondingly.

Nor is there any prospect in sight of a discontinuance of rise in prices. Copper, lead and tin are rising daily, and iron and steel show no sign of falling off in price.

#### MUNICIPAL CO-OPERATION IN KANSAS.

There are several cases in Kansas where two or more nearby municipalities use current from the same municipal lighting plant. In most of these cases, however, one city purchases current from another, which already owns a plant. The municipal light plant of Centralia furnishes current to the city lighting systems of Corning and Goff, in the same county.

The city of Ottawa recently began furnishing current to the municipal light system of Pomona.

Soldier has contracted with the city of Holton for current for electric lighting and power. The rates paid by Soldier are 5¼ cents per kilowatt hour for the first 500 k.w.h. per month; 4¾ cents for the second 500 k.w.h., and 4½ cents per k. w. hour for all over 1,000 k.w.h., a month.

Sylvia has under consideration the purchasing of electric current from the Stafford municipal plant, and the obtaining thereby of 24-hour service.

#### PORTLAND'S DRILL TOWER.

By HALDANE WHITE.

A modern, complete and inexpensive drill tower has just been completed in Portland, Ore., for use as a drilling school for the fire bureau. The structure is four stories in height and is fitted for all kinds of drilling and training work essential in fire fighting and life saving. The cost of the structure complete was \$1,000.

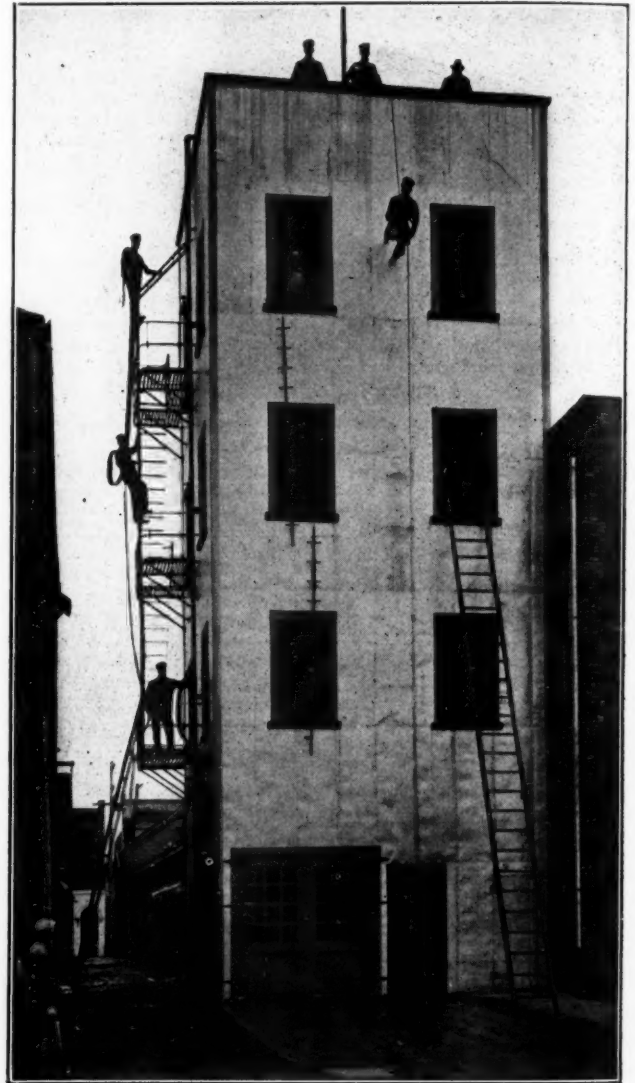
The building is 20 by 20 feet in size and 52 feet high. The framework is of heavy timbers reinforced with iron rods cinched to the brick building behind which the tower stands. The framework is covered with smooth galvanized iron so set that the interior is almost airtight. The airtight features are considered essential inasmuch as it enabled the making of a smudge inside the tower for smoke drills.

The tower has windows on two sides specially reinforced to withstand the hooks of scaling ladders. The lower story of the building is 12½ feet in height and the others 11½ feet each. On top is a five foot fire wall covered with galvanized iron and protected by wooden coverings. Inside the building are stairs leading from floor to floor.

On the outside is a complete fire escape and a stand-pipe. While firemen are drilling with the ladders, the ropes or in rescue work a circus net is stretched about the bottom of the building for protection in case any of the men should slip and fall.

A training school has been organized in the department. Each day during good weather one or two men from each station will go to the tower for drill. The school will be in charge of fire officials.

The drill tower was designed and built by Lee Holden, a battalion chief of the bureau. The work was all done by firemen so that the cost of the building was confined to material and a small amount for tinning work necessary to seal up the cracks of the exterior. Inside the tower is a hose tower to serve the engine company which occupies the building to the rear of which the drill tower has been erected.



FIREMEN DRILLING ON TOWER, PORTLAND, OREGON.

#### CONSTRUCTING A BITUMINOUS MACADAM STREET.

Saratoga Springs, N. Y., during 1915 constructed a bituminous pavement to replace an old water-bound macadam, which was removed. The city engineer, Samuel J. Mott, sends us the following figures concerning the work. The pavement was 2½ inches thick after rolling.

Number of gallons of Tarvia per sq. yd.....	2.603
Cost of spreading and heating Tarvia, per sq. yd....	\$0.03756
Cost of spreading and heating Tarvia, per gallon...	0.0147
Cost of hauling, spreading and rolling stone (1 mile haul), per sq. yd. ....	0.107
Cost to haul, roll and spread stone per ton .....	0.5825
No. of square yards of pavement .....	6,602
No. of gallons of Tarvia used .....	16,789
No. of tons of stone used .....	1.213
No. of cubic yards old water bound macadam removed	1,298
Cost per cubic yard to remove old macadam .....	\$1.039
Total cost of pavement, 6,602 sq. yds.....	5,762.34
Cost per square yard, including all work .....	0.872



# The WEEK'S NEWS

California and New Jersey State Highways—Paving in Kansas—Fort Wayne's Asphalt Plant—Typhoid in Kansas—St. Louis' Big Sewer Finished—Dallas Sewage Plant—Providence and Waterloo Waterworks—Denver's Water Bonds Valid—Wheeling's Gas Plant to Shut Down—Brooklyn Pier Fire—New Auto Fire Apparatus—Nashville and Memphis Cases Completed.

## ROADS AND PAVEMENTS

### Cutting Down California Highway Force.

Sacramento, Cal.—This year is being marked by the gradual reduction in the staff of workers by the California Highway Commission, according to its engineer, A. B. Fletcher. As fast as a job is being completed men are being let out, as very little new work is being started. "The work of the Highway Commission under the \$18,000,000 issue has passed the zenith," stated Engineer Fletcher, "and we are gradually reducing the number of workers. From time to time now the force will be reduced, and by fall only a skeleton will be left."

### The Jefferson Highway.

Kansas City, Mo.—Three hundred boosters attended the last meeting of the Jefferson Highway Association here and decided on parts of the route of the national highway between New Orleans and Winnipeg. Between Joplin and Kansas City two routes are tentatively on the map, one running northwest from Joplin and through Pittsburg and Ft. Scott and the other cities along the eastern border of Kansas clear to Kansas City. The other comes north from Joplin through Webb City, Cartersville, Carthage and on north through the county seats of the west tier of Missouri counties to Kansas City. It was agreed that whichever of these routes had the most miles of rock road completed by September 1 next, would be made part of the official route of the Jefferson highway. The chosen route south passes into Oklahoma not far below the south line of this State, and runs thence to Muskogee, Okla., and then south into Texas, where it swerves to the southeast to New Orleans. The route passes northeast from Kansas City, missing St. Joseph, the route chosen being shorter than the one through St. Joseph. The directors contemplate selecting a route supervisor, who shall receive a salary and successively visit the points along the proposed route of this highway, keeping up interest in the undertaking and seeing that the work of road building does not slacken anywhere along the route.

### State Highways in New Jersey.

Trenton, N. J.—Unequivocal opposition to a special State tax or a bond issue for public road purposes, until a system guaranteeing adequate return for expenditures has been established, is one of the striking features in the report of the joint highways committee of the Legislature authorized last year to codify and revise the laws relating to the improvement of public roads. Defects in the present system, as viewed by the committee, are due to the system itself rather than to the highway officials of the State, who are credited with being "quite as capable and proficient in their field of operation as like officials in other States." Three essentials to a proper adjustment of the road problem, as set forth in the report, are an adequate system of repair, continuity of road improvement and recognition of the State's duty to maintain a system of public highways. The committee believes the patrol repair system is the best insurance of road maintenance and urges its adoption. In the distribution of State funds between counties, the committee found it impossible to work out any satisfactory arbitrary allotment upon the basis of mileage, traffic, ratables, population or any combination of these. It did believe, however, that preference should be shown to counties having a lower amount of tax ratables, and hence being less capable of bearing the burden of an adequate improved

road system. The report of the committee is accompanied by drafts of three bills, providing a plan of reorganizing the State road system, as already outlined. The principal bill would create a new road department under supervision of a State road advisory board, under which would be a State road commission of three members, and under this commission a State engineer and assistant. The second bill would abolish the present State department of motor vehicles, which, the report suggests, should be consolidated with the new road department. The third bill is a specific repealer of existing road legislation. It is shown that the improved highway system of the State has cost approximately \$25,000,000 for about 3,400 miles of State-aid and county roads. It is estimated that there are 1,000 miles of roads indifferently improved and about 10,500 miles in their natural condition. "We are confronted," says the committee, "with a situation in which, in general, the value of the money spent in improvements is being only partially realized in return, because of the deterioration of the road system. In other words, the State has failed to maintain its roads in an improved condition following the initial improvement. Your committee believes, therefore, that the first essential requisite of a complete and adequate provision for the road condition is an adequate system of repair which will meet as early as possible a threatened deterioration and prevent injury to the improved road structure."

### Paving in Kansas Towns.

Topeka, Kans.—Fifty Kansas towns—all but fourteen of them with less than 10,000 population—have paved streets, according to records compiled from Kansas municipal reports. The record of town paving growth shows but three towns with a population of more than 3,000 which have no paved streets. Almost every town of importance in the State is now engaged in paving. Several of the smaller towns have a number of miles of paved streets. During the last few months thousands of dollars worth of paving bonds have been registered with W. E. Davis, State auditor, and the records indicate that 1916 will be the busiest municipal paving season the state has known. Topeka ranks second in the list, having a paving record of 85.5 miles, as against 125.24 in Kansas City, Kan., and 70.34 miles in Wichita, the third town on the list. Twenty towns in the state have more than ten miles of paved streets, while eight towns have more than twenty miles of hard paving. The paving record does not include macadam or oiled streets. Five years ago there were barely twenty communities in the state with paved streets, most of them of more than ten thousand inhabitants. In December, 1914, the list had grown to forty-four and Sabetha, population 1,857, was the smallest of them. Last year Clay Center, Beloit, Herington, Holton, Tonganoxie and Glasco increased the list to fifty. The latter two have 954 and 860 inhabitants respectively.

### City Loses Paving Fight.

Baltimore, Md.—The mayor and city council of Baltimore city lost their second fight in two years to force collection of more than \$22,000 from the United Railways and Electric Company, charged by the city to be the company's legal and fair proportion of the cost of laying improved paving between and for two feet on either side of the tracks in several sections of the city. The original suit was brought in 1913, and after it had been lost the city administration had bills passed by the General Assembly of 1914 designed to strengthen its case against the Railways Company. Of

this phase of the case the Court of Appeals, at Annapolis, in its opinion says: The Legislature had no power under the Constitution and laws of the State to charge the defendant with the cost of doing the work sued for in this case." Addressing the main contention in the action, the Court of Appeals says: "There can be no recovery unless the defendant was specially benefited by the improvement, because the assessment laid upon it was illegal and void." Then, in further substantiation of its decision in favor of the Railway Company, the Court, in citation from its own former opinions, says: "There can be no doubt that the rails, roadbed and other property of that corporation are subject to taxation for municipal purposes, but it does not follow that it must contribute specially to street improvements, such as this is. Its estate is such as would not be enhanced in value by the projected work." The case was appealed from the superior court of Baltimore city, which decided in favor of the city and entered judgment for \$21,455.44, with interest, amounting in all to \$22,449.56.

#### Year's Work of City Asphalt Plant.

Fort Wayne, Ind.—William C. Droege, superintendent of the city asphalt repair plant, has submitted his report on the work done by the plant during the 1915 season. It cost the city but 74 cents a square yard to make repairs to asphalt streets out of guarantee. An Iroquois surface heater was used during the season. Instead of cutting defective portions of the surface down to the concrete, one inch was burned off with this heater and then treated and patched with new material. The report in detail is as follows:

Maintenance on asphalt streets out of guarantee—New concrete, 13.6 yards; sheet asphalt, 11,518 square yards.

Pay Repairs—Work done on asphalt streets for private corporations—New concrete, 116.34 yards; sheet asphalt, 667.19 yards; asphaltic concrete, 13.16 yards; brick, 3.4 yards.

Totals—Concrete, 129.94 yards; asphalt, 12,185.71 yards; asphaltic concrete, 13.16 yards; brick, 3.4 yards.

Invoices were sent out for private work done in the sum of \$1,306.35.

Mr. Droege has been in paving work for fourteen years, the last two at the Fort Wayne plant. He has had a wide experience in this country and in Canada in every phase of asphalt construction.

#### Paving by City Saves Money.

Flint, Mich.—Advantages of the day labor system of doing city work over the contract system were demonstrated when a report by the finance committee providing for rebates to taxpayers of \$36,008.25 was adopted by the council. Last year it was decided to do the work of paving 7.2 miles of city streets by day labor under the direction of city engineer E. C. Shoecraft, because prices bid by contractors were considered too high. Of the total amount of \$36,008.25 which was saved the taxpayers by the city engineer's department, \$27,563.41 goes back to the pockets of property owners, who are assessed directly for 75 per cent of the cost. The remainder, or \$8,044.84, goes back into the city's treasury. In addition to this saving there was another \$5,000 which was credited to the construction of an asphalt plant. The real total saving to the city is more than \$40,000. Each of the taxpayers who was assessed directly will be repaid in cash the pro rata amount of saving according to the amount of his assessment. The amount that was actually saved under the contract prices which were bid is \$23,650 and the remainder, or about \$19,000, was saved under the estimates made by the engineer on the total work which cost about \$250,000. It is possible, seeing the saving already effected, that other paving work will be done by the city by day labor under the city engineer.

## SEWERAGE AND SANITATION

#### Banquet in Big Sewer.

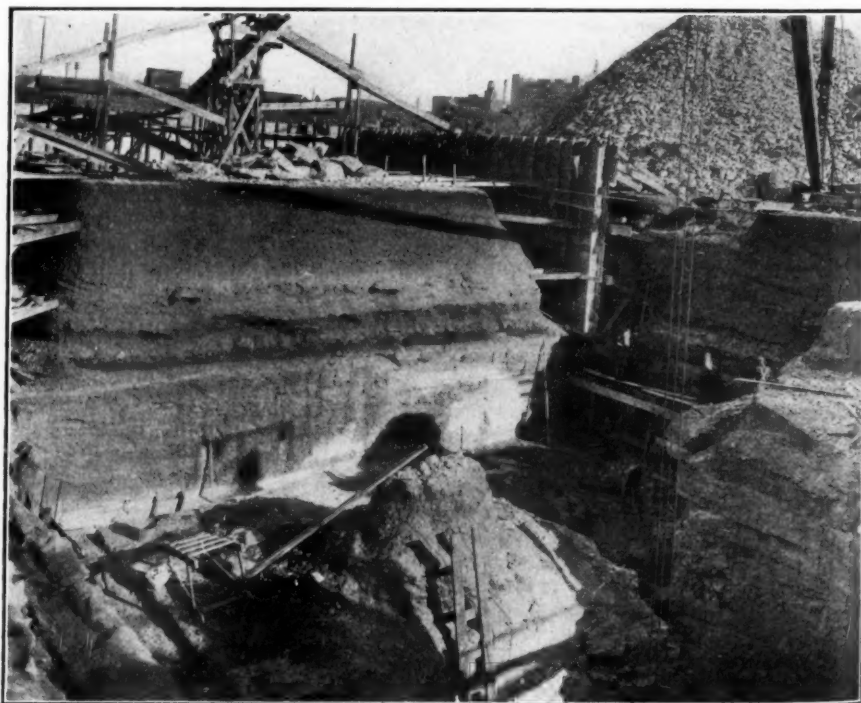
St. Louis, Mo.—A banquet in a sewer a hundred feet under ground, followed by a trip through the storm-water drain, marked the dedication of St. Louis' \$3,000,000 Mill Creek sewer. This concrete sewer, eighteen feet in diameter, is about four miles long and drains an area of 5,030 acres. The work was begun October 23, 1914, and two years was allowed for its construction. The time taken by the contractors, the Carter Construction Company and Norton, Head and Denneen, was only sixteen months. The sewer was formally turned over to the city by the contractors' chief engineer, R. T. Norton, and was accepted by Mayor H. W. Kiel for the municipality.

#### Kansas Wins in Typhoid Fight.

Topeka, Kans.—The first result of the active fight against typhoid fever in Kansas, made by the state board of health in the last three years, appeared when the state vital statistics bureau announced that deaths from this disease had been cut approximately 40 per cent. For ten years the deaths from typhoid have been about 350 a year. In 1915 there were only 195, the smallest number since the state has been gathering statistics of deaths. In 1914 there were 339, in 1913, 342, and in 1912, 345.

#### Progress on \$500,000 Sewage Plant.

Dallas, Texas.—Excellent progress is being made on the city's new sewerage system which, it is expected, will be completed in the fall of this year. The first contracts were awarded last April. James H. Fuertes, consulting engineer of New York, who designed the system, divided it into seven contracts, four of which are completed and the others all under way. The holder of the first three contracts is the General Construction Company, of Fort Worth, which worked on the Oak Cliff trunk sewer and two interceptors. Another interceptor, the largest in the system, is a 51-inch reinforced concrete main which empties at the pumping plant at a depth of thirty feet. The sixth contract is for the pumping station and a siphon under the Trinity river, and the seventh section is for the disposal plant and four miles of 36-inch concrete force main leading to it. The twelve Imhoff tanks will cover more than an acre and excavation is in progress by Bailey, Reeder & Co., contractors,



Courtesy, Dallas (Tex.) News.

EXCAVATION FOR NEW SEWAGE PUMPING PLANT, DALLAS.



for this work, which is to cost \$205,000. The pumping station, excavation for which is shown in the illustration, is at the junction of the mains and will handle all the city's sewage which is now being turned into the river to pollute it.

#### Measles Epidemic.

Coatesville, Pa.—This city has over a hundred cases of measles, principally among children. The epidemic appears to be spreading to an alarming extent and Dr. H. E. Williams, secretary of the city board of health, has issued strict orders that all cases be reported at once.

#### Health Conferences for Children.

Bloomington, Ind.—Health conferences for children are to be held in Bloomington and a number of other southern Indiana cities by the Federal Health Bureau, the State Board of Health and the Indiana University Extension Division. The aim of the conferences is to show the physical condition of the children examined and to indicate the points at which their health may be improved. Dates of the conferences are as follows: Butler, February 1-4; Auburn, February 8-11; Lagrange, February 22-25; Ligonier, February 29-March 3; Bicknell, March 7-10; Bloomington, March 11-20; Washington, March 21-24; Columbus, March 28-31; Petersburg, April 4-7.

#### Health Conferences for Children.

Indianapolis, Ind.—A health survey of Indianapolis schools will be started by school health inspectors under the direction of the city board of health by March 1, according to an announcement made by Dr. Herriman G. Morgan, city sanitarian. It is planned to make a physical examination of every child in the city, and reports will be made to the board on the condition of each child, so that in case physical defects are found that may be corrected, the board can notify the parents. Dr. Morgan said in case parents cannot afford to send physically defective children to physicians, the work will be done under the city's supervision. While the survey is in progress the board expects to receive reports concerning the number of anæmic or "poorly nourished" school children that data may be prepared to urge the establishing of more outdoor schools. The survey will provide information relative to the condition of children's teeth, eyes, nose, ears and throats. Reports on enlarged tonsils and adenoids especially will be sought. It probably will require several weeks to complete the work. The physicians who serve as school health inspectors will be supplied with charts showing diagrams of the oral cavity. If defective teeth are found, marks will be placed on the diagrams to show the teeth that are in need of attention. The board on receiving these charts will communicate with the parents.

### WATER SUPPLY

#### Profitable Waterworks.

Providence, R. I.—Providence's municipally-owned water system, since its beginning in 1872, has earned a net profit, after payment of all charges for maintenance and interest, of \$4,148,005, according to the annual report of the city auditor just issued. In addition to this amount, which has been turned into the sinking funds, \$683,482, which also represents money remaining after payment of charges, has been placed in the water depreciation and extension fund, making, in reality, \$4,831,487 profit for the period. City Auditor Chase's figures show that the total cost of the waterworks, for construction, maintenance, etc., from its start up to Oct. 1, 1915, amounted to \$24,894,743.22, while receipts in the same period have totaled \$21,588,654.07, leaving the net cost of the system, Oct. 1, only \$3,306,089.15. Bonds issued for construction and other purposes have amounted to \$10,166,000 and of this figure, bonds paid total \$7,417,000. In addition, there is in the water sinking funds \$1,306,815.69, making the net debt of the department, Oct. 1, \$1,442,184.31. The receipts from

water rentals during 1915, which amounted to \$805,814.39, the report shows, were, with a single exception, the largest in the city's history. The high mark was reached in 1913, when the total was \$806,940.22. The first cost of construction the waterworks system was \$7,071,283.41 and the cost of maintenance since its completion, covering a period of 43 years, has been \$6,644,057.97. Interest on bonds has reached a total of \$10,671,123.06, while interest on temporary loans has been \$508,278.78. Receipts from all sources up to Oct. 1 last were divided as follows: Water rentals, \$20,031,781.69; premiums, less discount on bonds, \$92,774.96; sale of materials, \$1,464,097.42. The total valuation placed upon the waterworks real estate by officials of the department, City Auditor Chase's report states, is \$4,945,445.86, divided as follows: Buildings and improvements, \$4,684,753.51; land, \$260,692.35. The area of property included in the system is 15,369,319 square feet. None of the figures included in the city auditor's report relate in any way to the new water supply now being developed in Scituate. Expenditures on the Scituate supply thus far have amounted to less than \$200,000, and the greater part of this has been expended in the purchase of real estate within the area to be flooded by the big reservoir. No bonds have been issued for financing the new supply, the money used up to date being obtained from the water depreciation and extension fund.

#### Waterworks Earnings Increase.

Waterloo, Ia.—The earnings of the Waterloo waterworks were slightly larger for the year ending December 31, 1915, than for the twelve months ending December 31, 1914, according to the report filed with the city auditor by George E. Shoemaker, secretary of the waterworks' board of trustees. The earnings for the past twelve months were \$45,366.30, as compared with \$44,552.77 for the same period in 1914. The expenses for the past year were less than in 1914. The cost of operating the plant for 1915 was \$58,404.86, while in 1914 it cost \$59,170.16. The surplus earnings for the last quarter of the year were \$13,500.70, as compared with \$11,246.47 for the same period in 1914. The report for the year follows:

Earnings.	1915.	1914.
Annual rates .....	\$2,034	\$2,329
Meter rates .....	73,949	74,543
Miscellaneous revenue .....	340	348
Building purposes .....	558	1,404
Taps .....	183	437
Street sprinkling .....	262	311
Steam heat .....	5,590	4,698
Tax, 3 mill levy .....	20,271	19,291
Revenue extension contract .....	1,081	358
<b>Totals .....</b>	<b>\$104,271</b>	<b>\$103,723</b>
Expenses.		
Operation (including bond int.) .....	\$54,744	\$56,191
Maintenance .....	3,660	2,979
<b>Totals .....</b>	<b>\$58,404</b>	<b>\$59,170</b>
<b>Surplus earnings .....</b>	<b>\$45,866</b>	<b>\$44,552</b>

#### Denver's Municipal Water Bonds Valid.

Denver, Colo.—The decision of the United States District Court at Denver denying a petition to have the \$8,000,000 bond issue for a municipal waterworks declared void, has been sustained by the United States Circuit Court of Appeals at St. Louis, Mo. The petitioners, who were non-residents of Denver, backed by the water company, but were taxpayers on Denver property, attacked the validity of a city charter amendment providing for a public utility commission. The case had been through the courts once before. In the first trial the lower court denied the petition to have the bond issue invalidated, but the case was remanded by the Circuit Court of Appeals. A similar result was reached on the second trial, so the appeal court sustained the decision of the lower court. Meanwhile the rate and valuation fight between the city and the Denver Union Water Company is continuing and appeal to the United States Supreme Court is being urged from the decision of Judge Robert E. Lewis, of the Federal District Court upholding the findings of William J. Chinn, special master in chancery. The city commissioners are asked by the Water Consumers' League to lend all possible help to the utilities commission. Objection is made to the allowance

by the master in four items: Water rights, \$2,947,617; interest during construction, \$699,545; going concern value, \$800,000, and engineering and contingencies, \$1,000,000. The resolutions expressed the opinion that the United States Supreme Court will overrule the awards in these items, whereas if no appeal is taken the rights of the city in the premises will be forever lost and the \$500,000 in water taxes—the difference between the company rates and the rates fixed by the 20 per cent reduction ordinance—will go to the water company.

## STREET LIGHTING AND POWER

### Municipal Gas Plant to Close.

Wheeling, W. Va.—Continuous losses at the city gas works, amounting some months to nearly a thousand dollars, have caused council to discontinue the plant after March 31, 1916. The state supreme court has ruled that the natural gas companies had the right to sell their product for illuminating purposes in the city in competition with the municipal plant, and since this ruling the city has been losing money regularly. The fight for the closing of the gas plant has been a long one, dating back to the time when an injunction was filed in the local courts to prohibit the natural gas company from selling in competition with the municipal plant. At different intervals resolutions calling for its closing have been offered, but were usually overpowered by a counter resolution asking for further investigation. This continued until last fall when the finance committee in fixing up the annual budget had arranged for the elimination of the gas department. When the report was presented to council a compromise was effected, which allowed the plant to operate for at least six months—but a report was to be submitted to council showing the receipts and disbursements of the plant at the end of each month. From the start these showed it to be consistently losing. Meters were being taken out at the rate of over a hundred a month, and those re-installed never exceeded a half dozen for any one month. The final report of the superintendent showed that his expenses for the month of December were \$482 greater than his receipts for the same period. It also showed that 160 meters were removed and two reinstated.

The plant was first started in 1850 by the Wheeling Gas Company, capitalized at \$50,000. In 1871, after agitation and litigation in which it was shown that the company was charging as high as \$3.50 per thousand cubic feet, the city assumed control of the plant and improved it. The Natural Gas Company of West Virginia then entered the city and began taking away the customers of the municipal plant and the state courts upheld its rights.

### City to Install Distributing System.

Los Angeles, Cal.—The city has decided to install and operate an electric distributing system for the benefit of its citizens who are to be served with electric light and power. This step was agreed on at a meeting of the water board when it found that no agreement could be reached with the Los Angeles Gas and Electric Company, and the Pacific Light and Power Corporation for the sale of their distribution systems.

### New Utility Plants Completed.

Wellington, Kan.—The waterworks and electric light plants have been completed and accepted by the board of commissioners. A very strict test conducted by the Benham Engineering Co., consulting engineers for the city, and Prof. Shaad of Kansas University, was run on the steam turbines and the complete power plant. The test showed that the turbines met the steam consumption guarantees of the manufacturers. The cost of this work amounted to approximately \$300,000 for nine wells, sub-station power house with switchboard apparatus for remote control on wells, two 750 g. p. m. duplex motor driven power pumps, 500,000 gallon capacity elevated tank, 13 miles of 16-inch and 18-inch pipe line, 1½ miles of 10-inch pipe line, 14 miles high tension transmission line, new electric

power station consisting of two 500 KVA alternating current, 3 phase, 60 cycle, 2,400 volts, turbo generator running condensing, 11 panel remote control, hand-operated switchboard, 1,500 g. p. m. motor driven underwriters fire pump, three 200-h.p. water tube boilers complete with all accessories, 125 foot concrete chimney and spray pond.

### Town Lit by Municipal Plant.

Stantonsburg, N. C.—This progressive town is now enjoying electric lights in residences and on the streets. The town has 25 arc lights and over 500 incandescents. The plant is municipally owned and a bond issue provided the money for construction.

### Celebrates White Way.

Newark, N. J.—With factory whistles blowing, church bells ringing and 6,000 people making noises, Roseville's white way was opened officially when seventy-three 600-candle-power lamps along Orange street were switched on. A street parade, made up of several Roseville organizations and a number of automobiles containing the members of the arrangement and reception committees along with their guests, passed up and down the street. The lights, which are placed on steel poles with no wires showing, are of the nitrogen type. A single switch operates the entire circuit.

### Protest Lighting Assessments.

Sandusky, O.—Twice upheld in the county courts, white way legislation may be reviewed by the state supreme court. The fight to enjoin the city from collecting special assessments to pay for the lighting has been carried to the high court. Dr. William Graefe, an extensive property owner in the downtown district, having asked for a review of the county court decisions in the case. Graefe is attacking a contract made December 21, 1914 by the city, with the Sandusky Gas and Electric Company, whereby owners of benefiting property are to be charged 50 cents per foot front on holdings abutting the white way district.

### Cost of White Way Lighting.

Virginia, Minn.—According to the report of city clerk Bickford to the city council, \$10,264.14 was spent for the maintenance and lighting of the white way standards during 1915 and \$9,924 was spent last year in maintaining and lighting the arc lamps of the city. It has been suggested that four of the five globes on each white way standard be without light after 9 p. m. daily.

### Municipal Light Plan Defeated.

Monroe, Mich.—The proposition to bond the city for \$75,000 for the purpose of building a new municipal lighting plant has been defeated at a special election. The vote was: Yes 166, no 520. At the same election the proposition to amend the charter to permit the Monroe Water Company to apply for a new franchise was carried by the following vote: Yes 373, no 297. The Monroe Water Company now probably will erect a filtration plant.

### Building Municipal Plant.

Atwood, Kan.—Good progress is being made on Atwood's new municipal lighting plant and system of street lights, which were provided for in a \$15,000 bond issue voted last fall. Material is on the ground and the construction work is being pushed. Twenty-eight posts, having three globes each, will light the principal business streets, and in the seventy-two blocks of the residence section there will be forty-nine bracket lights.

### Protests Against "Ready to Serve" Charge.

Elkhorn, Neb.—The village board of Elkhorn has started mandamus proceedings in district court in an attempt to compel the Platte Valley Power company to furnish electric current to its citizens without alleged excess charges. A franchise was granted by the village board last February. On November 1, according to the plaintiff's petition, the company rendered bills to its patrons charging 25 cents for meter rent and on December 17 asked payment



of 25 cents for "readiness to serve." Many patrons refused to pay these charges and on December 1 the company cut off the service in many homes, the petition alleges. A court order requires the company to turn on the current or show cause why it should not do so.

## FIRE AND POLICE

### \$3,000,000 Ship Pier Fire.

New York, N. Y.—The fire which destroyed Pier 36 in the Atlantic Basin, Brooklyn, practically destroyed the steamers Bolton Castle and Pacific and damaged the steamer Bellagio was not of incendiary origin, as was at first believed. The agents of the steamships and the fire department officials all agree there was no evidence that the fire was the work of plotters, and that it was due to defective electric wiring on the pier. The damage is estimated as ranging from \$1,000,000 to more than \$3,000,000, the last named being the estimate of Chief Lally of the Brooklyn fire department. Although the lives of more than 300 persons were imperilled, scores of them escaping by jumping into the icy waters of the bay, all persons known to have been on the ships or on the pier have been accounted for. The fire was discovered shortly after 2 o'clock in the morning, and within a few minutes the entire pier was aflame and the blaze had spread to the ships which were moored on the leeward side of the pier. Wind fanned the flames, which caused the practical destruction of the two ships. Although all the ships were either taking on or being made ready to take on supplies for the Allies, no explosives were included in the cargoes. The fire resisted efforts to quench it for more than three hours, and not until after 5 o'clock did Chief Lally announce that the blaze was under control. Thirty barges were burned up. There were two explosions during the fire, one on the pier and the other on the Bolton Castle, and both of oil, there being much case oil on the pier and in the ship. Several large auto trucks were burned, and a big pile driver dredge, moored near the burned ships, was destroyed.

### City Not Responsible for Dump Ground Fire.

New Brunswick, N. J.—A victory was won for the city by city attorney Thomas H. Hagerty when Judge Lloyd directed a verdict in the city's favor in the suit of Mrs. Elizabeth Reilly, administratrix of John Reilly, deceased, against the mayor and common council of New Brunswick. The action was brought to recover damages for the death of Mr. Reilly and for the destruction of the household goods of the plaintiff which were burned in a fire communicated to the Reilly residence from a fire on the public dumping ground adjoining. In directing a verdict in the city's favor, Judge Lloyd said it is well established in the courts of New Jersey that where a lawful act is being performed, albeit in a negligent manner, the municipal corporation which authorized the act is not liable. He said there was no proof to show that the dumping ground near the plaintiff's home was an improper place to burn refuse, but that refuse was burned there on an improper occasion, it being a case where the men who set fire to the refuse exercised wrong judgment. Mrs. Reilly's claim was for \$10,000 for the death of her husband and \$1,400 for the loss of household goods, and was

based upon the charge that the fire which destroyed her property was started by employees of the street department. Mr. Reilly, it was contended, contracted a cold while endeavoring to extinguish the flames, and later developed throat consumption, which caused his death. Cross-examination brought out that "pretty nearly every one" used the dump. The city attorney held that the city did not own or control the dump and that even if the fire was started by its employees, of which there was little proof, the city was not liable for the individual acts of its servants.

### Bell Police Alarm for Pittsburgh.

Pittsburgh, Pa.—The old bell of the city hall is to be put to new use by the police and detective departments of the city. Hereafter three strokes will indicate that a crime has been committed within four or five miles of the city hall or the downtown district, and on hearing the bell every officer of the department will go to the nearest telephone and get into immediate communication with headquarters. Formerly every patrolman reported once an hour and often the criminal got that much of a start on the police.

## MOTOR VEHICLES

### Fire Truck Makes Good Saving.

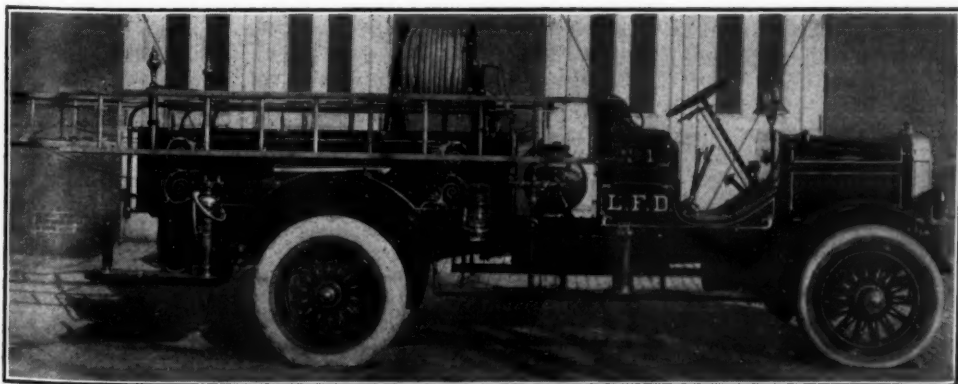
Keokuk, Ia.—According to figures given out by John Anderson, chief of the fire department, the new fire truck has been an economical addition to the fire fighting apparatus of the city as compared with the two teams it replaced and is making rapid strides toward paying for itself. The truck was placed in service on June 18, 1915. The upkeep since then was \$140, or approximately sixty-five cents a day. The maintenance of the two teams would have been \$2.50 a day at the lowest, for feed only, which would have made \$525 for the seven months. The difference, a total of \$385, was saved. On the same basis the saving for the year will therefore be \$675. The truck has run 427 miles in the seven months. Actual runs to fires and back covered 105 miles. The rest was on tests and other runs. There is a general average of four runs a week of two miles each, making eight miles a week. Considering the cost of running the truck and that of two teams, the cost of running a mile with the former has been fifty-seven cents, while a mile with the teams cost \$2.20.

### Lima Begins Motorizing.

Lima, O.—Lima is now the owner of her first piece of motor fire apparatus. Fifteen minutes after acceptance, the new combination made its first run in answer to an alarm. The fire department was well pleased with the work of the Gramm-Bernstein machine in test runs.

### Combination Accepted After Test.

Hagerstown, Md.—Following the official tests of the new American-La France combination the machine was accepted. The contract requirements called for 800 gallons, 120-pound pump pressure from draft. The first test was a capacity test, 1¾-inch nozzle with one 100-foot and two 50-foot lines of hose run into deluge set. The pump pressure was 121, nozzle pressure 92 and total gallons discharged 870. Test No. 2: Two 1½-inch nozzles, one 100-foot and one 50-foot line of hose, pump pressure 125, nozzle pressure 64 and 40 and total gallons discharged 915. The length of the tests was one-half hour each. Test No. 3 was a pressure test. One 1-inch nozzle and 1,000 feet of hose, nozzle pressure 102 with a total of 298 gallons discharged. This test lasted 15 minutes. The suction lift in all tests was about six feet. In the road tests the car went over all hills about the city not less than 30 miles per hour and the highest speed made was 50 miles per hour. The machine is a triple combination carrying fire pump, 40-gallon

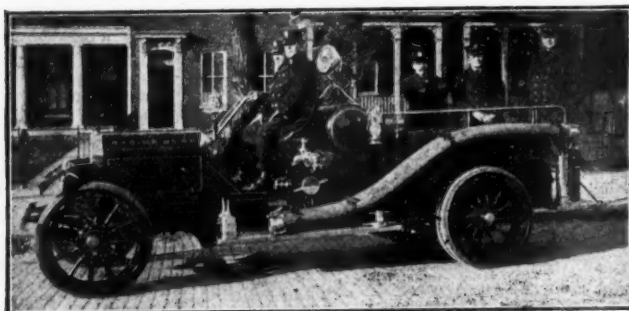


Courtesy, Lima (O.) Republican-Gazette.  
LIMA'S FIRST MOTOR FIRE APPARATUS.

chemical tank, 200 feet chemical hose, 200 feet of 2½-inch hose, one 12-foot roof ladder, 20-foot extension ladder, 10-foot pike pole and 12-inch search light. It is electrically started. Its motor is six-cylinder, 5½x6, developing 110-horse power. The new Western Enterprise Fire Company, which gets the machine, celebrated with a pig roast.

#### New Apparatus in Capital.

Washington, D. C.—Two new pieces of American-La France fire apparatus have recently been installed by the district fire department—a pumping engine and a combination chemical and hose wagon. Both machines were accepted only after they showed their quality in severe tests. Superintendent of Machinery T. W. Robinson had charge of the trials. The pumper received three tests as follows: The first test, for displacement, two hours run with 120 pounds pressure at pump, one line of hose, 2½-inch 500 feet, one line of hose, 2½-inch 100 feet connected into a siamese with 1¾-inch nozzle, average nozzle pressure 66 pounds, giving a water displacement of 636 gallons per



WASHINGTON'S NEW PUMPER.

minute; second test, two hours run, one line of hose 2½-inch 500 feet, with 1¼-inch nozzle, 200 pounds pump pressure at pump, average nozzle pressure 59.3, giving a water displacement of 355 gallons per minute; third test, two hours run, one line of hose, 2½-inch 500 feet with ¾-inch nozzle, 253 pounds pump pressure at pump, average nozzle pressure 151.5, giving a water displacement of 274 gallons per minute. All of the tests were made without a stop of motor from start to finish. The accompanying illustration shows the new pumping engine.

#### Truck Does Well in Stiff Test.

Warren, Pa.—The fire department recently received its new combination from James Boyd & Brother, Inc., Philadelphia, Pa., and accepted it after a very severe test. The machine is a combination chemical and hose truck, type "CD." It was tested in a blinding snow storm. With eighteen passengers the truck was run to the eastern borough line at an average speed of thirty miles an hour through the driving snow. Glade hill was climbed at twenty-eight miles an hour and the steep Carver street hill, insurmountable to previous apparatus, was climbed without trouble. Fire Chief Gordon was in charge of the test and was accompanied by the members of the fire company and the fire commission. The machine was sold by James E. Chalfant, Boyd representative in York, Pa.

#### New Machine for Department Officer.

Lynn, Mass.—The new Buick runabout for assistant chief William F. Welch has been placed in commission. The auto is a "light six" and is painted a brilliant vermillion, striped in black. The motor develops 36 horsepower, which will send the car along at speeds up to 65 miles an hour. It has a top for bad weather and a self-starter. It carries a three-gallon chemical tank and an electric bulls-eye lantern.

#### Fire Engine in Sewer Cleaning.

Pomona, Cal.—Fire Chief Davidson has tried out a novel scheme for cleaning sewers. He used the big pump on the auto fire engine to open up a sewer which had been clogged with dirt and sand for days. The sewer was first emptied and then a high pressure stream was sent through.

## GOVERNMENT AND FINANCE

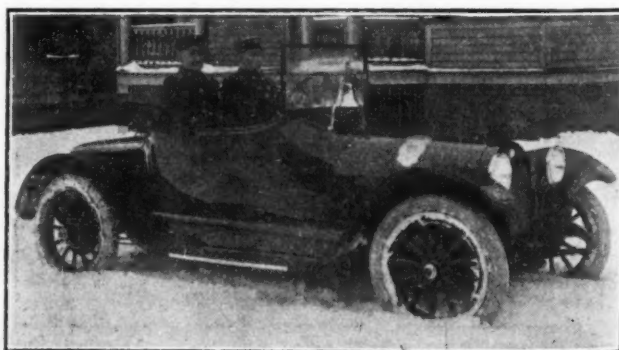
### Town Disincorporated.

Miami, Ariz.—The Gila County Board of Supervisors has disincorporated this town following the presentation of a petition from taxpayers who numbered thirty more than the necessary two-thirds' majority required by law. Mayor S. E. D. Sears and the other officials opposed the disincorporation. Action was taken by the citizens following a number of civic scandals and failure of the officials to provide protection against the floods. The whole town was pleased at the acceptance of the petition.

### Nashville and Memphis Ousters.

Nashville, Tenn.—The Tennessee Supreme Court has handed down decisions of interest all over Tennessee in the Nashville and Memphis cases. In the ouster case against Hilary E. Howse, former mayor of Nashville, and serving on his third term when suspended under ouster proceedings on July 27, and ousted by circuit court decree on November 30, the judgment was affirmed. The charges under which he was ousted included waste of the city's money, loose management and disregard of law. The supreme court also confirmed the circuit court decree reinstating Robert Elliott as commissioner of waterworks of Nashville. The supreme court also decided the Memphis ouster cases involving Mayor E. H. Crump and Fire and Police Commissioner R. A. Utley. The charge against them was failing to enforce the prohibition laws. They were ousted November 3, by chancery decree, lost on pleas of guilty entered "to expedite on appeal" the supreme court. The cases of Crump and Utley differed from the Nashville cases, the two defendants having previous to the ouster proceedings been re-elected for new terms beginning January 1, last. The supreme court sustained their ouster from office, but held that the proceedings did not apply to their new terms. Attorneys construe sections of the former opinion to specifically uphold the contention that officials may be ousted upon convictions of malfeasance during a former term of office. These attorneys declare that under the opinion proceedings may be instituted against Crump and Utley as soon as they are sworn in for their new terms. This construction has been placed on the case by Gen. G. T. Fitzhugh, of Memphis, special counsel of the state, who announced that he would at once file new ouster proceedings against Crump and Utley.

Memphis, Tenn.—The opinion of the supreme court holding that the ouster of Mayor E. H. Crump and others in the city government of Memphis did not extend to their new terms beginning Jan. 1, 1916, to which they were re-elected in April, 1915, was received with widespread interest here. Mayor Crump announced that he would consult with his attorneys as to plans for assuming office at the earliest moment. The court's decision is expected to result in a general shake-up in the city government, only one member of the commission as it exists having been elected by the people. A celebration with a big parade of torch lights, brass bands and participated in by men and women of Memphis, was held as a result of the supreme court's decision, returning Mayor Crump to office.



Courtesy, Lynn (Mass.) Evening Item.  
RUNABOUT FOR LYNN'S ASSISTANT CHIEF.



## LEGAL NEWS

### A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

#### Taxation—Limitation of Amount.

People ex rel. Dailey, County Collector, v. Cleveland, C., C. & St. L. Ry.—A City cannot for the purpose of paying a judgment against it levy a tax exceeding the statutory limitation as to the amount of taxes which it may levy, as it cannot evade the statute by permitting a legal liability to be fixed by way of judgment.—Supreme Court of Illinois, 110 N. E. R., 1021.

#### Officers—Duties Imposed by State—Enforcement of Laws.

State v. Linn.—The state may impose upon the local office of the city of Tulsa specific duties in the matter of the enforcement of the laws of the state having force and effect within the city, and may provide penalties for failure to discharge such duties, and in respect to the duties so imposed the municipality and its officers are the agents of the state, and subject to its command and control at all times.—Supreme Court of Oklahoma, 153 P. R., 826.

#### Ports—Nature of Municipal Corporation.

State v. Port of Astoria.—A port organized under L. O. L. §§ 6114-6125, declaring that municipal corporations designated as ports may be incorporated, and that they may make, change, and abolish such rules and regulations for the use of navigation in harbors or rivers or the placing of obstructions or the removal therefrom as may be convenient, and such rules and regulations may be enforced by fines and penalties, is a municipal corporation within Const. art. 4 § 1a, art. 11, § 2.—Supreme Court of Oregon, 154 P. R., 399.

#### Assessment Fund—Claim of City—Preference.

Mallory et al. v. City of Olympia.—A city, which had been held liable on a quantum meruit to a contractor for a local improvement, and which, pending litigation thereover, made up an assessment roll and collected cash on the improvement fund, stood in the position of the other creditors as to the money it had advanced on the improvement, and hence could not prefer itself by taking the first numbered bonds of a series issued to pay creditors and delivering the last, which probably never would be paid, in satisfaction of the contractor's demand.—Supreme Court of Washington, 152 P. R., 996.

#### Police Power—Building Ordinance—Invalidity.

Lavery v. Board of Commissioners of Jersey City.—An ordinance of the board of commissioners of Jersey City that, to protect property on residence streets, no buildings of any kind shall be constructed, built, erected, or moved upon any land in the city so as to be in front of the whole or any part of any dwelling house situated upon such land, or in any way that will cut off the frontage, unless a permit is obtained from the superintendent of buildings, is unconstitutional as transcending the limits of the city's police power.—Supreme Court of New Jersey, 96 A. R., 292.

#### "De Facto Officer"—Person Illegally Appointed.

City of Ardmore v. Sayre.—Where one person is holding an office by legal appointment, and claiming to be such officer de jure, the mere fact that another person may take possession of said office, and perform some of the duties and functions of said office, under a pretended appointment by an officer or public board, or body acting against a plain provision of the statute, and without any color of right, power, or jurisdiction to remove the de jure officer, or to appoint such pretending officer, such pretended appointee is not a de facto officer, for the reason that, under such circumstances, there cannot be two different officers, de jure and de facto, in possession of an office at the same time, where one incumbent only is provided by law.—Supreme Court of Oklahoma, 154 P. R., 356.

#### Auto Bus Ordinance—Schedule—Validity.

Ex Parte Lee.—Section 3a of Ordinance No. 6248 of the city of San Diego, requiring every auto bus, for the operation of which a permit is issued under the ordinance, to maintain a regular schedule from 6 a. m. to 12 midnight daily at least six days each week, etc., is not unconstitutional, but is a legitimate exercise of the police power of a city.—District Court of Appeal, Second District, California, 153 P. R., 992.

#### Requirement of Guaranty from Contractor.

United States Fidelity & Guaranty Co. v. Star Brick Co.—A city has the undoubted authority, in the absence of specific statutory authority, to require a guaranty to be given by a contractor to secure the payment of material furnished and labor performed under a contract with such city, as the taking of such guaranty is not in violation of any public policy or law of this state.—Supreme Court of Oklahoma, 153 P. R., 1122.

#### Indebtedness—Computation—"Outstanding Solvent Debt."

Schuldice v. City of Pittsburgh et al.—An estimate made by the proper municipal officers of the cost of an authorized change of street grade, and of the damages to property owners therefrom, is properly computed in determining the amount of a city's indebtedness, but no deduction can be made for possible benefits to be assessed against property owners until the assessments are complete and their amount definitely fixed; such benefits being too uncertain and speculative to be accepted as a proper item of deduction, under Act April 20, 1874 (P. L. 65), as an "outstanding solvent debt."—Supreme Court of Pennsylvania, 95 A. R., 938.

#### Sewer Contractor's Bond—Validity—Right to Recover.

Live Oak Lumber Co. v. Farr et al.—Where the contractor with a city to build a sewer executed a bond with sureties under the bond act (St. 1897, p. 201, as amended by St. 1911, p. 1422), which was approved by the city trustees, and a corporation furnished lumber and material used in the construction of the sewer, no part of which was paid for, and, within six months after filing with the board of trustees of the city its verified claim, sued to recover from the contractor's sureties, the bond having been executed and approved by the trustees one day after the execution for the contract, and the material having been furnished and used subsequently to the execution of the contract and the bond, the statute was sufficiently complied with to authorize a suit on the undertaking for recovery of the value of the material furnished.—District Court of Appeal, Third District, California, 153 P. R., 741.

#### "Grading and Opening" Streets—Special Assessments—Refunds—Exemptions.

Washington Water Power Co. v. City of Spokane.—Where a city acquired land for a street under a contract with the grantor that it would refund to him any grade tax paid for opening, grading, or improving any part of said street, excepting sidewalks, and at the time of opening the street the city merely prepared it roughly for travel, and thereafter sought, on paving and establishing a permanent grade, to tax the costs against the grantor's successor in interest, the terms of the contract were not fulfilled by the first work, since the terms "grading" and "opening" used in conjunction mean the establishment of a permanent grade by embankments, cuts, fills, gutters, and curbs. In such case, where the contract provided for reimbursement also for improvements, paving was not included in the word "improvements," there being at the time of the contract very little paving in the city, and, had it been contemplated, the word "paving" could have been used as well as the word "improvement," which is a relative term whose meaning must be ascertained from the context. In such case, the agreement of the city to refund the special assessments paid was not invalid as an exemption from taxation, the agreement of the city being the consideration for the transfer of the land.—Supreme Court of Washington, 154 P. R., 329.

### Ordinances—Repeal and Re-Enactment—Smoke Abatement.

Northwestern Laundry and T. R. Hazard, appts., v. City of Des Moines, et al.—The express repeal by Iowa act of March 20, 1913, of the earlier act of April 15, 1911, which granted identically the same authority to municipalities to abate the smoke nuisance as is conferred by the repealing statute, did not have the effect of annulling a municipal ordinance adopted under the sanction of the earlier law.—Supreme Court, 36 S. C. R., 206.

### Use of Streets—Ordinance Relating Motor Vehicles—License Validity.

Dresser et al v. City of Wichita et al.—The provision of the ordinance in question, requiring those operating any self-propelled vehicles carrying passengers for hire to pay additional licenses of \$300 to \$400 before being permitted to solicit or receive passengers on the paved portions of certain designated streets, although practically prohibitive as to such designated places, is a valid exercise of municipal control.—Supreme Court of Kansas, 153 P. R., 1194.

### Street Improvements—Irregularities in Proceedings.

Cohn v. Federal Construction Co. et al.—The failure of the resolution of intention to state the term of the bonds or an imperfect statement therein of such period does not affect the jurisdiction of the council to have the work done, since while such proceedings must strictly follow the statute, the statute does not require the resolution of intention to state such period, and the provision for bonds is for the benefit of the property owner, to enable him to pay in installments, and the proceedings for letting the contract, doing the work, and making the assessment are the same whether bonds are authorized or not.—Supreme Court of California, 153 P. R., 916.

### Claims Against City—Presentation.

Puckett & Wear v. City of Fort Worth.—Where the special charter of a city declared that it should not be held liable for injury to persons or property unless the person claiming the same should within 30 days after the injury serve written notice upon the board of commissioners giving the time and place where the injury occurred and its nature, it is necessary, in order to charge the city with the negligence of the engineer in giving incorrect grades for the laying of cement walks which necessitated the relaying of the walks, to give notice to the board of commissioners; the fact that the city engineer knew of his own negligence not showing that the board of commissioners had knowledge thereof.—Court of Civil Appeals of Texas, Ft. Worth, 180 W. R., 1115.

### Street Acceptances—Power of Council.

Raisch Improvement Co. v. Bonslett, Superintendent of Street.—St. 1885, p. 147, provided that city councils might accept by ordinance streets improved to their satisfaction and the satisfaction of the city engineer, when sewer, gas, and water pipes are laid, or might conditionally accept streets in which they were not laid if the ordinance recited that they were deemed unnecessary. The trustees of the town accepted certain streets in a plat, reciting in the ordinance that sewer and gas pipes were laid therein. The pipes were not so laid. Thereafter the trustees, on the basis of the false statement, declared the ordinance of acceptance void, and passed a new ordinance for the improvement of the streets and laying of the pipes, and let the contract for the work. The contractor executed and presented his bond to the superintendent of streets, who refused to accept it, on the ground that the first ordinance was still in effect and valid. Held, that the jurisdiction of the trustees, being limited in matters of special assessments, was confined to the express words of the authorizing statute, so that the accepting ordinance was void because it falsely stated that the pipes had been laid and failed to state they had not, but were deemed unnecessary.—District Court of Appeals, First District, California, 153 P. R., 747.

### Street Paving—Parking—Liability of City for Paving Cost.

City of Crowley v. Police Jury of Acadia Parish.—A municipality has authority to set apart and leave unpaved ornamental spaces in the center of a street that is wider than the traffic requires, and the governing authority does not thereby make the city liable as a property owner for one-half of the cost of paving the street on either side of such ornamental spaces, under a statute requiring the owners of the property abutting the paved street to pay the cost of the pavement according to the front-foot rule of apportionment.—Supreme Court of Louisiana, 70 S. R., 487.

### Insolvent Contracting Corporation—Receivers—Powers As to Assets.

Mack Mfg. Co. v. Citizens' Construction Company et al.—That a receiver for an insolvent corporation conducted work on a municipal improvement and used material furnished prior to the insolvency proceeding does not establish a claim of a materialman for a lien for such materials as against the insolvent corporation, when notice of the lien was filed after appointment of the receiver, since his acts were within his powers, and any liability he may have incurred cannot be adjudicated in a suit against the corporation.—Court of Chancery of New Jersey, 96 A. R., 101.

### Forbidding Brick-Making in Designated Area—Police Power.

Hadacheck v. Sebastian.—1. A municipal ordinance enacted in good faith as a police measure, prohibiting brick-making within a designated area, does not take, without due process of law, the property of an owner of a tract of land within the prohibited district, although such land contains valuable deposits of clay suitable for brickmaking which cannot profitably be removed, and manufactured into brick elsewhere and is far more valuable for brickmaking than for any other purpose, and had been acquired by him before it was annexed to the municipality, and had long been used as a brickyard.—Supreme Court, 36 S. C. R., 143.

### Change of Grade—Measure of Damages—Evidence.

City of Atlanta v. Atlas Realty Co.—"The measure of damages to abutting property caused by raising the grade of a street is the difference between the market value of the property before and after the change of the grade." Mayor, etc., of Macon v. Daley, supra; Howard v. County of Bibb, 127 Ga. 291, 293, 56 S. E. 418; Smith v. Floyd Co., 85 Ga. 420, 11 S. E. 850; Streyer v. G. S. & F. R. Co., 90 Ga. 56, 15 S. E. 637; City Council of Augusta v. Schrameck, 96 Ga. 426, 23 S. E. 400, 51 Am. St. Rep. 146; Roughton v. Atlanta, 113 Ga. 948, 39 S. E. 316.

(a) The plaintiff would be entitled to recover only the diminution in the market value of the property; but it is competent to prove the cost of filling in the lot to raise its level to that of the street, not as an independent item of special damage, but as a fact or circumstance throwing light upon the general question of diminution of market value. Mayor, etc., of Macon v. Daley supra; City Council of Augusta v. Schrameck, supra; Atlantic & Birmingham Railway Co. v. McKnight, 125 Ga. 328 (3), 54 S. E. 148.

(b) While the plaintiff is entitled to recover only the diminution in the market value of the property and may not recover for any decrease in the rentals thereof, the difference in the rental value of the property before the improvements were begun and after they were completed might be set up as a circumstance tending itself to show a diminution in the value of the property, or to corroborate other evidence to that effect.

(c) Diminution of rental value, brought about by any impairment of the right of ingress and egress appertaining to the property, affords no basis for a recovery in such a suit. To authorize a recovery, the market value of the land after the change of grade must be less than the market value of the land before such change was made, and it is immaterial whether the income of the plaintiff was reduced while the change was being accomplished. Streyer v. G. S. & F. R. Co., 90 Ga. 56 (2), 15 S. E. 637.—Court of Appeals of Georgia, 87 S. E. R., 698.



## NEWS OF THE SOCIETIES

### Calendar of Meetings.

**Feb. 28-March 3.—AMERICAN ROAD BUILDERS' ASSOCIATION.** Thirteenth annual convention, including sixth American Good Roads Congress and seventh National Goods Roads Show of Machinery and Materials, Pittsburgh, Pa.

**Feb. 29-March 4.—TENTH ANNUAL MID-WEST CEMENT SHOW,** Omaha, Neb.

**March 23, 24.—FLORIDA STATE GOOD ROADS ASSOCIATION.** Annual convention, St. Augustine.

**March 6-10.—DOMINION GOOD ROADS ASSOCIATION.** Third Canadian and International Good Roads Congress, Sohier Park, Montreal, P. Q. Secretary-Treasurer, Geo. A. McNamee, 909 New Birks Bldg., Montreal.

**May 8-10.—SOUTHWESTERN WATER WORKS ASSOCIATION.** Annual convention, Waco, Tex. Secretary, E. L. Fulkerson, Waco, Tex.

**May 10-17.—NATIONAL CONFERENCE OF CHARITIES AND CORRECTIONS.** Annual conference, Indianapolis, Ind.

**June 4-8.—AMERICAN WATER WORKS ASSOCIATION.** Thirty-sixth annual convention, New York, N. Y. Secretary, J. M. Diven, 47 State Street, Troy, N. Y.

**June 15, 16.—OHIO SOCIETY OF MECHANICAL, STEAM AND ELECTRICAL ENGINEERS.** Convention, Cleveland, O. President, Joseph L. Sheldon, Toledo.

**June 28-30.—MICHIGAN LEAGUE OF MUNICIPALITIES.** Annual meeting, Battle Creek, Mich.

**July 11-13.—MUNICIPAL LEAGUE OF INDIANA.** Annual meeting, Goshen, Ind.

**Aug. 7-9.—CITY MARSHALS' AND POLICE CHIEFS' UNION OF TEXAS.** Annual convention, Houston, Tex.

**Sept. 6-9.—LEAGUE OF AMERICAN MUNICIPALITIES.** Annual convention, Newark, N. J.

### International Engineering Congress.

The Committee of Management, International Engineering Congress, 1915, announces that the volume on Mechanical Engineering is ready for distribution, and the members who have subscribed to this volume will soon receive it.

The other volumes will be issued as rapidly as possible. Owing to the large amount of material to be reprinted and the thousands of copies to be bound, the work cannot be carried on with greater speed. However, it is hoped that within two months the entire set will be completed.

Members who did not send in their final selections may be disappointed in not securing all the volumes they might have had in mind. It may be possible to supply members who would apply at this late hour with copies of volumes which have not gone to press. W. A. Cattell, Foxcroft Building, San Francisco, is secretary.

### International Association of Fire Engineers.

The members of the executive committee of the International Association of Fire Engineers held a meeting at Providence, February 8-10, to make plans for the annual convention which will be held in that city August 29 to September 2. Plans were discussed at both the morning and afternoon meetings, but nothing definite was done, other than setting the date. Further

plans will be announced later. The committee has decided on two of three halls where exhibitions will be held. An effort will probably be made to obtain the armory for one exhibit.

### Dominion Association of Fire Chiefs.

A meeting of the Board of Directors of the Association will be held in the City of Windsor, Ont., on Thursday, March 9, 1916, to select the time for the annual convention, and to arrange the programme for the sessions. The board desires to so arrange the programme that it will prove educational and profitable to all, and to that end requests all members to send to the secretary any suggestions as to topics, or other business, as well as the names of those who may be able to prepare papers for discussion. These should reach the secretary's office not later than the morning of March 6.

So that a complete list of the names of all chiefs in Canada may be prepared members are requested to send to the secretary, the names of all chiefs, including chiefs of private departments. James Armstrong, Kingston, is secretary.

### Snow Removal Conference.

On the evening of March 8, a Snow Removal Conference will be held in the Assembly Hall of the Automobile Club of America, 247 West 54th street, New York city, under the joint auspices of the Division of Highway Engineers, Arthur H. Blanchard, chairman, and the Division of Municipal Engineers, George W. Tillson, chairman, of the National Highways Association; the Automobile Club of America, Elmer Thompson, secretary; the Citizens' Street Traffic Committee of Greater New York, Robert Grier Cooke, chairman; and the Graduate Course in Highway Engineering of Columbia University.

The conference will be opened at 8.30 P. M. with an illustrated lecture on the subject "Modern Methods of Snow Removal," by William H. Connell, chief Bureau of Highways and Street Cleaning of Philadelphia. A series of topics will then be presented for discussion by recognized authorities on snow removal. The proceedings of the conference will be published by the National Highways Association, Charles Henry Davis, president.

All persons interested in economic and efficient methods of snow removal are cordially invited to attend the conference.

### Utah Municipal League.

The annual session of the league was held at Provo, January 18-20. At the morning session the speech of welcome was made by A. P. Merrill, president of the Provo Commercial Club. This was followed by an address by Mayor James E. Daniels, to which John W.

Hunter, mayor of American Fork, responded. A discussion, led by Rev. W. T. Bulkley, on "Cruelty to Animals" followed.

In the afternoon, C. F. Baker, president of the league, delivered his annual address. He touched on the necessity for proper sewerage, adequate water systems, playgrounds, pavements, the advantages of clean-up day and the value of the clean-town contests. He commended the commission form of government, and suggested that the legislature at its next session be urged to extend it to cities of the third class.

Roy Bullen, city engineer of Logan, spoke on "How to Build City Roads." John G. M. Barnes, mayor of Kaysville; James Larsen, Le Roy Dixon, John W. Hunter and W. P. Epperson were among those who took part in the discussions.

At the night session Dr. H. G. Merrill, city physician, read a paper on "Public Health and Sanitation." Geo. H. Brimhall, president of Brigham Young University, delivered an address on "Public Service by the Private Citizen."

The second day was devoted to discussion of readjustment of taxes and the juvenile court. Prof. William G. Roylance, of the University of Utah, said the mines of Utah are paying only about 10 per cent of the taxes that should be assessed to them. He said the voters made a mistake when they turned down the proposed amendment of the constitution permitting a change in the system of taxing the mines. He declared the mines would pay \$90,000,000 if they were taxed in the same proportion as other property.

The speaker denounced the law which goes into effect this year on the valuation of property, saying that the farmers would bear the burden of taxation until constitutional amendments and adjustments could be made. He said that at the present time the banks are assessed close to their full value, so that the raise will not affect them materially. The speaker favored a change in the system of taxation which would be more in the nature of an income tax, which would result, he said, in a more just distribution.

At the afternoon meeting, held in the Central School, the question discussed was: "Should Our Law Controlling the Handling of Juveniles Be Changed?" W. P. Epperson, of Kaysville, opened the discussion. He said the present system was not satisfactory as far as the suburban territory and small towns were concerned. Some claim, he said, that this is partly due to lack of funds. In cases of window breaking, disturbing meetings, profanity, bringing liquor into dry territory, etc., he said the parents are often in large measure responsible.

E. J. Milne gave a review of the work of the juvenile court officers and stated that during the past year they had considered 249 cases where adults had been brought up for the delinquency of the child, and 4,651 juvenile cases. The state allowed them an ap-

appropriation of \$28,500 for the handling of these cases.

At the final session, a report was made of the bills which had been drafted and acted upon by the legislature during the past year, including the prohibition, tax and license measures.

It was suggested that a copy of the proceedings of the municipal league be printed in pamphlet form and each member be given a copy and that one be mailed to each town and city in Utah not represented at the convention.

On invitation of Mayor W. W. Wilson it was unanimously voted that the convention be held next year in Sandy. The following officers were elected:

W. W. Wilson, mayor of Sandy, president; James E. Daniels, mayor of Provo, vice-president; James Larsen, mayor of Logan, second vice-president; Daniel Rasmussen, mayor of Mount Pleasant, third vice-president, and T. F. Brickney, city recorder of Sandy, secretary and treasurer. Mayor Decker was chosen as first vice-president, but he refused to accept the position, as he is no longer a city official.

#### Ohio State Waterworks Association.

At the annual meeting, held at Columbus, January 26-27, the following officers were elected: John A. Poland, president, Chillicothe; S. F. Messer, vice-president, Kent; F. C. Jeannot, secretary and treasurer, Wilmington; executive board, R. P. Bucher, Shelby; C. U. Wiles, Delaware; C. O. Ronig, Dennison; J. F. Prendergast, Marion, and E. P. Fisher, London.

#### Nebraska Firemen's Association.

At the annual meeting of the state firemen's association, held at Crawford, January 19-20, Auburn was selected as the next convention city, and the following officers elected:

Jacob P. Hoffman, Ord, president; Harry J. Hauser, Fremont, first vice-president; John W. Guthrie, Alliance, second vice-president; E. A. Miller, Kearney, re-elected, secretary; H. B. Webbert, Kearney, re-elected, treasurer; board of control: Jacob Goehring, Seward, chairman; W. E. Mote, Chadron; F. B. Tobin, Sidney; O. W. Rhodes, Scott's Bluff; Bert J. Galley, Columbus

#### Minnesota Surveyors' and Engineers' Society.

The district courts and the legal profession in general were criticised severely for their lack of knowledge relative to drainage problems in Minnesota at the twenty-first annual convention of the society, held at St. Paul, February 11.

"Every attorney and judge should spend at least one year in the company of a good surveyor as a part of his training," declared A. D. Abercrombie. W. R. Reynolds, of Redwood Falls, also found fault with the opposition of the district courts on the subject of assessment for drainage work.

Following an address on "Drainage Surveying," by J. E. Cole, county engineer of Morris, a warm discussion ensued in which ample funds for financing

the various drainage projects was declared the most necessary thing.

"No engineer can be considered successful unless he is able to combine utility with artistic conceptions," declared M. E. Chamberlain, of Montevideo, in an address on "Sidewalks and Curbs."

All engineers were urged to collect cost data for future reference in a paper prepared by G. L. Wilson, chief engineer of the Twin City lines, St. Paul, and read by Secretary Herrold. The title of the address was "Cost Data."

Municipal street sprinkling was discussed by J. C. Utton, city engineer of Rochester, one of the first of the smaller cities of the country to do its own sprinkling.

George P. Diekmann, chief chemist of the Northwestern Portland Cement Company of Mason City, Iowa, addressed the society on "The Modern Manufacture of Portland Cement."

F. W. McKillip, city engineer of Faribault, was elected president; B. J. Reynolds, drainage engineer of Redwood Falls, vice-president, and W. F. Rosenwald, division engineer of the state highway commission, secretary-treasurer.

#### Indiana Municipal League.

At an executive committee meeting of the Municipal League of Indiana, held January 26, it was decided to hold the next annual meeting of the league at Goshen, July 11, 12 and 13. H. Karl Volland, mayor of Columbus, presided at the meeting, and he was authorized to appoint program, legislative, membership and auditing committees.

#### County Road Engineers' Association of Kentucky.

The fourth annual session of the County Road Engineers' Association of Kentucky was held at Lexington, February 5-11. Officers were elected as follows: President, W. H. Edwards, of Woodford county; first vice-president, William P. Caldwell, of Boyle county; second vice-president, Clinton Woodward, of Jessamine county; third vice-president, R. W. Davis, of Fayette county.

Papers presented included the following: "Convict Labor on Public (Continued on page 287.)"

## PERSONALS

Allen, Thomas J., an engineer and a railroad and bridge builder, died Feb. 4 at his home in Netcong, N. J., in his sixty-fifth year. He was born in Mount Vernon, and with his father and brother, Hugh Allen, built the coal docks of the Lackawanna Railroad at Port Morris. Mr. Allen had built bridges in South America, Mexico, and this country.

Anthony, A. L., has been elected a member of the Providence, R. I., Board of Park Commissioners.

Blood, Chester, has been appointed a member of the Terre Haute, Ind., Board of Public Works.

Brower, David, a former assistant engineer of the Bureau of Sewers of Brooklyn, N. Y., died February 14, aged 72. He had been continuously in the employ of the city for 54 years.

Bystrom, Andrew, has been elected mayor of Tower, Minn.

Cole, A. L., has been appointed inspector of buildings of Waltham, Mass.

Colton, E. W., has been appointed superintendent of Road Supervisors of Yellowstone county, Montana.

Duncan, Louis, a member of the firm of Duncan, Young & Co. of 50 Church street, and for many years widely known as an electrical engineer, died Feb. 13 at his home, 998 Prospect avenue, Pelham Manor, N. Y., in his fifty-fourth year. He was best known as an electrical traction expert, and was consulting engineer of the Rapid Transit Commission during the electrification of the transit systems of this city.

Gephart, Jr., John T., engineer of construction of the Pennsylvania State Highway Department, has tendered his resignation to Chief Engineer W. D. Uhler, who accepted it. Mr. Gephart resigned to accept the position of consulting engineer for Fayette County, Pa.

Harding, V. A., of Kansas City, has been appointed superintendent of the municipal water and light plant of Goshen, Ind.

Horn, Leroy D., has been appointed superintendent of streets and sewers of Port Jervis, N. Y.

Jackson, I. W., has been elected president of the Board of Park Commissioners of South Bend, Ind.

Lavers, Guy E., formerly a transitman in the Niagara Falls, N. Y., city engineers' office, has been appointed second assistant city engineer of that city, succeeding Earl Moss, resigned.

McGinnis, John W., has been appointed street commissioner of Toledo, O., succeeding Thomas A. Taylor, who retired in September.

McKenna, M. F., has been appointed inspector on bridge work at Bridgeport, Conn.

Twining, W. S., has been appointed director of the Department of City Transit of Philadelphia.

The appointment has been announced by the Pennsylvania State Highway Department of Julius Adler as engineer of tests of the department. Mr. Adler has been connected with the Highway Department of the city of Philadelphia as assistant engineer in charge of plant inspection.

Announcement of appointment of several more engineers for positions in the Ohio State Highway Department has been made by Highway Commissioner Clinton Cowen. E. W. Davis, Zanesville, will succeed Nicholas Koehler, Columbus; T. T. Richards, Ravenna, will succeed himself. Salary of each is \$2,100 as division engineers. Reappointment was announced of J. R. Burke, Lancaster, and Frank E. Withgott, Columbus engineers, at salaries of \$2,020 yearly, and E. M. Blake, Portsmouth, engineer, salary \$1,440.



# NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

## A ROAD OILING TRUCK.

### And Combination Service Machine.

The Netco road oiling and combination service truck consists of a five hundred gallon tank mounted on a Netco chassis. The machine is worm-driven and is equipped with cab, headlights, Pres-O-Lite tank, hubodometer, hand Klaxon and full equipment. The main claim made for the outfit is that of economy of operation—ability to oil maximum length of road at lowest cost. Moderate initial expense and economical maintenance cost are also claimed.

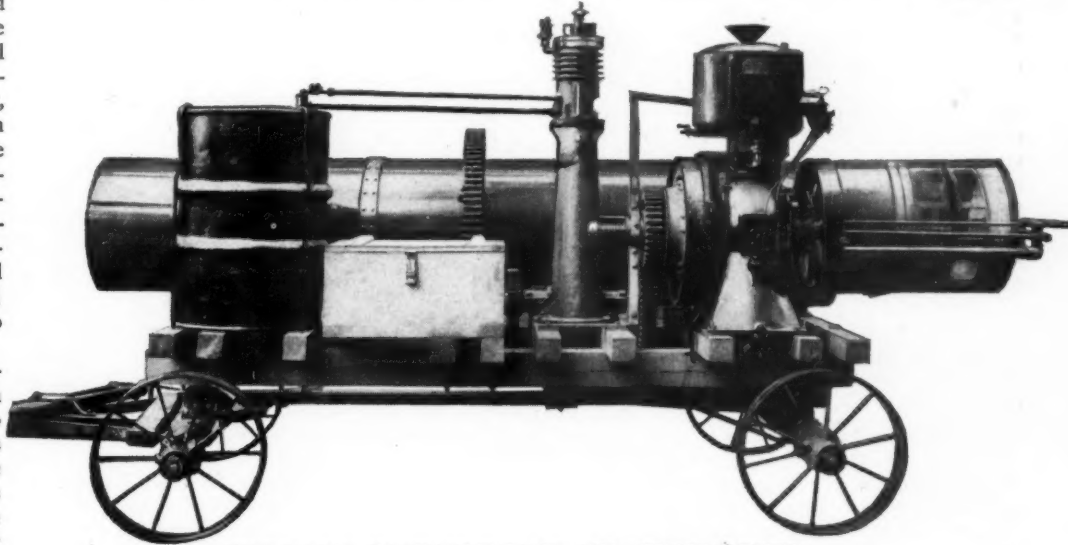
The tank is built of ten-gauge steel with an 18-inch man-hole raised six inches to prevent slopping. All flanges are firmly riveted to the shell. A heating pipe coil is fitted to and installed inside the tank as close to the lower side as possible. Instead of this a self-contained heating system may be had, operated by a kerosene oil burner located in a compartment built in rear of the tank. The jet bar is rigid, it being claimed that just as efficient results are obtained as with swaying bars and many parts are eliminated in construction. The oiling controls are placed at the driver's seat or on rear of tank, as desired. Where traffic is not heavy and there are not too many crossings, the machine can be operated by one man.

The pressure is obtained from a Taber rotary pump which handles the oil

at much higher pressure than is necessary for oiling. It operates at low speeds and is economical in power consumption. The pump drive and speed reduction is through hardened steel

set at a thirty degree angle. The hoist is the standard Netco hand hoist, safe and easily operated.

The accompanying illustrations show the truck and (on the next page) the



THE RAPID PORTABLE SAND AND STONE DRYER.

gears, in dust-proof case, running on Timken bearings in oil bath.

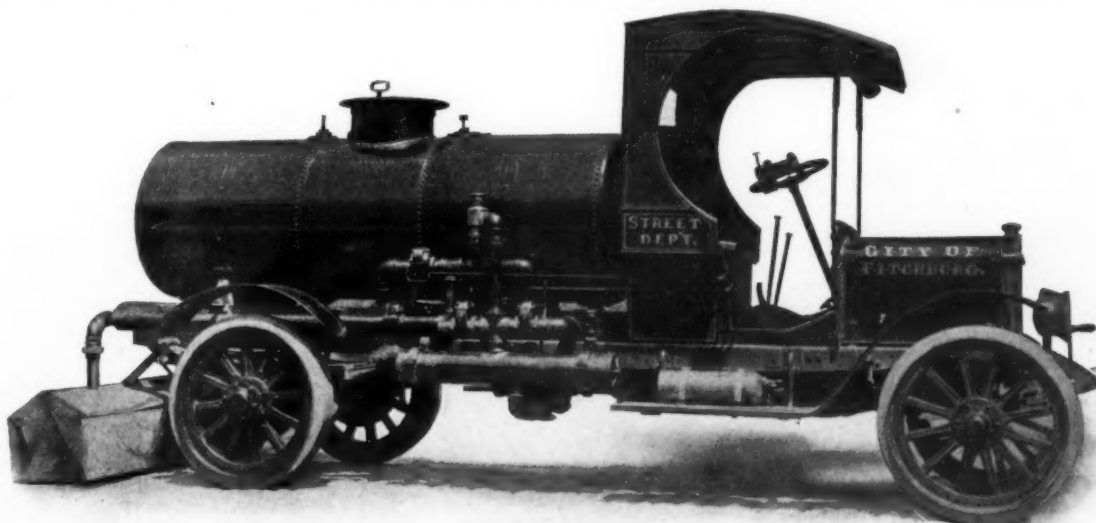
One of the important advantages in the design of this oiler is that the tank can be quickly demounted and the chassis used to hold a standard truck body which is furnished with the machine. The truck can then be used for transporting material, men and tools and for the many other uses to which a truck can be put. The body is built solid and substantial, of steel and oak and is designed for dumping. It is ten feet long, 66 inches wide and 18 inches deep, with 6-inch flare boards on top.

pump. The Netco machine is made by the New England Truck Company, Lunenburg and Congress streets, Fitchburg, Mass.

## A PORTABLE DRYER.

### For Sand and Other Materials for Contractors.

There is an increasing demand for a light and portable material dryer for contractors, municipalities and other users of construction equipment. In answer to this demand the Rapid portable sand and stone dryer has been designed for various uses, including sup-



THE NETCO ROAD OILING AND COMBINATION SERVICE TRUCK.

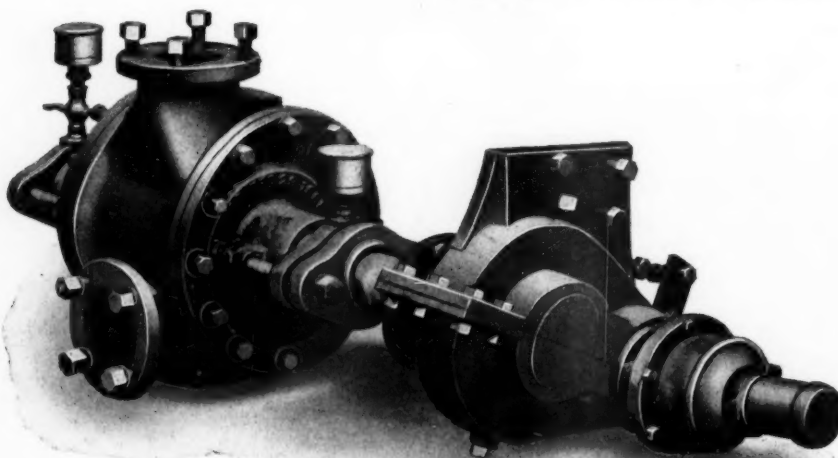
plying hot sand, pebbles, etc., for squeegee work or in connection with an asphalt heater for various road building purposes.

The Rapid dryer consists essentially of a drum for holding the material which is revolved by a gasoline engine and a powerful oil burner for heating run by an air compressor—the whole mounted on a convenient, substantial truck.

The drum is twelve feet long and twenty-four inches in diameter. At the burner end it is jacketed with asbestos to prevent radiation. The oil burner is located inside the drum and is held in position on a frame of heavy pipe, fastened on the truck frame, outside the drum. The burner requires no combustion chamber, but burns in the open air with a blue flame which can be easily regulated. Through two small pipes (shown above the drum) are supplied oil and air to the burner. Kerosene oil is used, from five to eight gallons per hour being consumed. The air compressor is of special design, having but one valve, and at normal speed, pumps twenty-six cubic feet of free air per minute. The "Ideal" gasoline engine for revolving the drum is a 6 horsepower machine.

The dryer is of the continuous type. In operation the charging end of the drum is slightly elevated, the burner is lighted and the material shoveled into the drum. The material is carried through by gravity—cascading over a number of flights placed parallel with the drum, being thoroughly agitated while being conveyed toward the heat. Eight to ten minutes' time is required after the machine is started before the discharging of the hot materials through the screen begins. Any size screen may be used. Output, both in quantity and temperature, can be easily regulated.

The dryer, which is shown in the accompanying illustration, is made by the Rapid Mixer Company, Porter Building, Grand Rapids, Mich.



TABER PUMP ON NECTO ROAD OILER.

### "ASPHA-BRIC."

#### Treatment of Paving Bricks.

One of the most interesting exhibits at the National Paving Brick Manufacturers' Association, which is attracting a great deal of attention, is that of the Aspha-Bric Corporation, which has developed a process for impregnating any type of paving brick with an asphalt compound which is forced uniformly through the brick by high pressure applied under intense heat after all air and moisture have been removed. The brick when cooled contracts but retains the impregnating compound that has penetrated the structure. After the brick has been thus treated it retains its original appearance except in color. The brick after being laid in the street has the same appearance as any brick



pavement with asphalt filler, but is claimed to have the advantages of a monolithic wearing surface. The impregnating compound acts as a binder to any loose mineral particles as well as a lubricant to the surface when under traffic. It is claimed that brick so treated will resist abrasive wear uniformly, will not chip or spall, is waterproof and will last much longer than a brick pavement not so treated. Another claim for it is that an "Aspha-Bric" pavement is practically noiseless.

The display of the Aspha-Bric Corporation includes samples of brick of several manufacturers that had been submitted to tests for abrasion before and after impregnation. One make is said to have shown a loss of 23 per cent when untreated and 11 per cent when treated; another make, 30 per cent and 13 per cent respectively; another—a common clay brick—was reduced to powder untreated, but lost only 9 per cent after treatment; others

showed 53 per cent and 14 per cent, 51 and 12 per cent, 35 and 16 per cent, 28 and 12 per cent, before and after treatment respectively. These tests were made at the Chicago laboratory of the Robert W. Hunt & Co.

No brick treated by this process has as yet been laid except for experimental purposes.

## INDUSTRIAL NEWS

**Cast Iron Pipe.**—Chicago—Inquiry for pipe is heavier and tonnage in sight includes a letting at St. Louis of 7,200 tons; at Bloomington, Ind., 800 tons; at Kalamazoo, Mich., 300 tons; at Bay City, Mich., 300 tons, and at Rockford, Ill., 650 tons. The leading interest will furnish 1,100 tons for Kansas City and 1,500 tons for Milwaukee. Another 1,700 tons for Milwaukee will be supplied by the American Cast Iron Pipe Company. Quotations: 4-inch, \$32.50 to \$33; 6-inch and larger, \$29.50 to \$30; Class A, \$1 extra. Birmingham—A fair amount of new business has been coming in and there is every reason to expect a continuance of the present manufacturing pace. The United States Cast Iron Pipe & Foundry Company is approaching the completion of its two remaining pits in the remodeled Bessemer plant. The five pits will have a capacity of 150 tons each, making a total for the plant of 750 tons. There is a marked tendency to raising quotations. Quotations: 4-inch, \$27; 6-inch and up, \$25. San Francisco—New projects are coming up slowly, but northern business is picking up. Bellingham, Wash., is in the market for 200 tons of 4 and 6 inch pipe. There is talk of a high-pressure fire protection system installed at Seattle, Wash. Bids are being taken for the Wailuker-Kahuhic Waterworks, Maui, T. H. Newport Beach, Cal., has taken figures on a few cars of small pipe. Quotations: 6-inch and up, \$35; 4-inch, \$38; Class A, \$1 extra. New York—Albany, N. Y., opened bids February 21 on about 565 tons of 6 and 8 inch; Pittsfield, Mass., is buying a quantity of water pipe. The letting at Worcester, Mass., 747 tons, went to the leading interest at \$33, delivered, for 4-inch, and \$30 for 6 to 20 inch. The same company secured the award at Pawtucket, R. I., 455 tons, at \$32.25 for 4-inch and \$29.25 for 8 to 16 inch. While municipal lettings continue to be few in number, private buying goes on steadily with less inquiries coming at a good rate. Quotations: 6-inch, Class B and heavier, \$29.50; Class A, \$30.50.

**Lead.**—Lead is up \$3 per ton and the strong export demand continues. Quotations: New York, 6.25 cents, St. Louis, 6.15.

**The Roughen Adjustable Paving Gauge Company,** Chicago, Ill., on February 16, held a drawing for an outfit. The prize was an adjustable paving gauge to be presented to an owner of a gauge who had submitted a photo-



graph of his equipment in actual work. Numbered cards corresponding to others held by the competitors were shuffled and drawn. The prize went to the Central Engineering Company, Davenport, Ia.

**The Clydesdale Brick & Stone Company,** Oliver Bldg., Pittsburgh, Pa., has elected Mr. W. W. Cunningham as vice-president, with charge of manufacture and sales of the "Clydesdale" shale paving block which will shortly be put on the market. Mr. Cunningham recently resigned from the Pennsylvania Clay Company, of Pittsburgh, of which for the past thirteen years he was president and general manager.

**The Gardner Governor Company,** Quincy, Ill., recently sold to the Bettendorf Company, Bettendorf, Iowa, a 20x14x12 duplex steam pump. On account of a large stock of reserve parts, the company was enabled to give unusually quick service in the emergency. The Bettendorf Company's plant was menaced by the rise of the Mississippi River and it was necessary for them to obtain a pump with a capacity of at least 1,000 gallons of water per minute to protect their plant. A 20x14x12 duplex steam pump was recommended by the builders, with delivery on the following Monday night. The order was given to the Gardner Governor Company on Saturday afternoon, February 5, after their shops were closed down. They immediately got together a few of their expert erectors and built the pump from their stock of reserve parts. After a thorough test, it was loaded and shipped Monday afternoon. The pump weighed 11,000 pounds.

**The American Coal Products Company** and the **Barrett Manufacturing Company** have decided to unite the good will and the reputation of both concerns under the name of the **Barrett Company**. The American Coal Products Company is well known in connection with the sale of sulphate of ammonia, and heretofore owned the stock of the Barrett Manufacturing Company. The fact that all the coal tar chemicals, disinfectants, roofing, waterproofing, road-making and wood preserving materials have been made and widely advertised in the name of the Barrett Manufacturing Company has added immensely to the good will attached to the Barrett name. This increase, however, has not been connected in the minds of the general public with the securities of the American Coal Products Company. The new company will have the same amount of stock as the American Coal Products Company and the change in name will be accomplished by exchanging the outstanding certificates share for share. Some of the widely advertised trademarks of the Barrett Manufacturing Company are of Barrett Specification Roofing, Tarvia for roads, and Congoleum floor coverings—the latter being manufactured and distributed by the Congoleum Company department of

the Barrett Company. The products of the chemical department of the Barrett Company are receiving particular attention at this time, due to the European situation, and it is expected that this branch of the business will be of larger importance hereafter as an American source of supply of these products in this country. The Barrett Company in this department has produced for many years pure (natural) carbolic acid, cresylic acid, refined naphthalene (in various forms), benzol, toluol, etc., in addition to which they also now manufacture considerable quantities of synthetic carbolic acid (phenol).

## NEWS OF THE SOCIETIES

(Continued from page 284.)

Roads," Colonel R. J. McBride, president Kentucky Good Roads Association, Louisville, Ky.; "Cost of Concrete Road Construction," O. M. Clark, Indianapolis, Ind.; "Maintaining Macadam Roads," C. S. Woodburn, county road engineer, Jessamine county; "What Kentucky Is Doing in Road Building," Robert C. Terrell, commissioner of Public Roads, Frankfort, Ky.; "Practical Economy in Road Building," W. H. Edwards, Jr., county road engineer, Woodford county; "Efficiency in Handling Road Materials," R. W. Davis, county road engineer, Fayette county; "Financing a System of County Roads," F. A. Bullock, judge, Fayette county fiscal court; "What West Virginia is Doing in Road Construction," A. D. Williams, chief engineer, state of West Virginia; "Mountain Roads," F. McClure, engineer-in-charge of construction, Knox county; "Cost of Bituminous Roads," E. J. Boltz, judge of Campbell county court.

### National Paving Brick Manufacturers' Association.

The annual meeting of the National Paving Brick Manufacturers' Association was held at the Hotel Statler, Cleveland, Ohio, February 21 and 22, in connection with the annual convention of the National Brick Manufacturers' Association. In connection with this meeting an interesting exhibit was held, this including samples of brick of various manufacturers, photographs of equipment and printed matter.

Some of the exhibits were held in a central exhibition hall and others in rooms throughout the hotel.

Exhibits, including paving brick and photographs of equipment and printed matter, included the Chambers Bros. Company, Philadelphia, Pa., brick making machinery; Standard Steam Drier Company, Indianapolis, Ind., brick dryers; Manufacturers' Equipment Company, Dayton, Ohio, dryers, producer gas burning systems, crushers and clay plant supplies; Lakewood Engineering Company, Cleveland, Ohio, electric transfers, dryer cars, clay cars and concrete mixers; H. Brewer & Co., Tecumseh, Mich., clay

working machines; Thornton Fire Brick Company, Clarksburg, W. Va., block and face brick; Arnold-Creager Company, New London, Ohio, brick machines; Ceramic Supply & Construction Co., Columbus, Ohio, feeders, elevators, screens, rattlers, etc.; Youngstown Steel Car Company, Youngstown, Ohio, industrial cars; J. D. Fate Company, Plymouth, Ohio, clay working machinery; Stevenson Company, Wells-ville, Ohio, clay working machinery; Thwing Instrument Company, Philadelphia, Pa., pyrometers; Lechlenberg Bros., Quincy, Ill., clay working machines; American Clay Machinery Company, Bucyrus, Ohio, clay working machinery; Hocking Valley Products Company, Logan, Ohio, brick. One of the novelties was the "Aspha-Bric," or ordinary paving brick impregnated with asphalt, by the Aspha-Bric Corporation, 1904 Whitehall Bldg., New York, N. Y.

### Fire Underwriters' Association of the Pacific.

The fortieth annual convention of the Fire Underwriters' Association of the Pacific was held at San Francisco February 9 and 10.

Among the interesting papers read were "Making Moving Picture Negatives," by Weldon D. Whelan; "Relationship Between Mercantile Agencies and Fire Underwriting," by Edward J. Hollister; "Use and Occupancy Insurance on Pacific Coast," by George E. Townsend; "The Ideal Fire Prevention and How to Attain It," by J. H. Shively, and "Our Extravagances," by T. H. Williams.

At the final session Washington Irving was elected president and Walter Forup, vice-president. Calvin Meade was re-elected secretary-treasurer.

### Massachusetts Highway Association.

At the annual meeting of the association held at Boston, February 10, the following officers were elected: President, Louis K. Rourke, former street commissioner of Boston; vice-president, John M. Keyes of Concord; secretary, John M. McCarthy of Natick; treasurer, Charles A. Brown of Wellesley.

### Seattle Association of American Society of Civil Engineers.

Captain A. O. Powell was elected president of the Seattle Association of the Members of the American Society of Civil Engineers at the annual banquet held on the evening of January 31. Joseph Jacobs was elected vice-president and Carl H. Reeves was re-elected secretary-treasurer. Charles H. Rust city engineer and water commissioner of Victoria, B. C., spoke on the subject of "Victoria's New Water Supply." Other speakers were: S. H. Hedges, W. E. Herring, G. R. Howes, L. M. Grant, F. H. Thomson, Joseph Jacobs and L. V. Branch, of the government reclamation service. R. H. Ober, retiring president was toast-master.

# ADVANCE CONTRACT NEWS

## ADVANCE INFORMATION BIDS ASKED FOR

## CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

### BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS</b>				
Ill.	Georgetown	11 a.m., Feb. 26	Constructing 5 1/4 miles brick or concrete roads	H. T. Haworth, Town Clerk.
Pa.	Wilkes-Barre	Feb. 26	40,000 gallons road oil	M. C. Murray, Supt. Sts. & Public Improvements
Ia.	Vall	noon, Feb. 27	Road grading and repair work	H. E. Miller, Township Clerk
Idaho	Wallace	Feb. 28	43,825 yards of asphalt and 46,297 yards of concrete	D. M. Fairles, Engr.
Ind.	Peru	Noon, Feb. 28	Grading, draining and paving, and constructing culverts	F. K. McElheny, County Auditor
Mich.	Lansing	4 p.m., Feb. 28	Furnishing asphalt cement for 1916	City Engineer
Ind.	Lebanon	Feb. 28	Paving and constructing walk, cost \$12,757	Walter Whitecotton, City Engineer
N. D.	Minot	Feb. 28	Constructing 24,844 sq. yds. first-class pavement	E. J. Thomas, City Engr.
Ind.	South Bend	11 a.m., Feb. 28	Constructing township road	A. S. Wolf, County Auditor
Ia.	Mason City	Feb. 28	Lay 60,000 yds. of conc. & 150,000 yds. sheet asph. pave.	F. P. Wilson, City Engr.
Mich.	Kalamazoo	10 a.m., Feb. 28	Const. 8 miles gravel mac. road & grading 2 1/4 miles	H. C. Fleming, Engr.
O.	Cincinnati	noon, Feb. 28	Resetting and setting granite curbs, paving with wood block and granite and constructing drain and inlets	C. F. Hornberger, Dir. Pub. Ser.
Pa.	Erie	Feb. 28	Asphalt, cement, sand, gravel and limestone dust for street work for 1916	W. D. Kinney, Dir. of Streets.
Ky.	Louisville	2 p.m., Feb. 28	Constructing sidewalks on several streets	Roger McGrath, Secy. Bd. Pub. Works.
Minn.	St. Paul	10.30 a.m., Feb. 28	Curbing street	August Hohenstein, Pur. Agt.
Minn.	Duluth	11 a.m., Feb. 28	Improving street	J. A. Farrell, Comr. Pub. Wks.
Ia.	Davenport	2 p.m., Feb. 29	Repairing 15,000 sq. yds. with brick on concrete base, cost \$34,000	A. R. Boudinot, City Engr.
Va.	Richmond	Feb. 29	Constructing 4 miles macadam road	G. P. Coudeman, St. Hwy. Comr.
Mich.	Saginaw	1 p.m., Feb. 29	Furnishing stone, gravel and cement for 1916	J. W. Ederer, County Rd. Comr.
Va.	Petersburg	Feb. 29	5,000 yds. granite block and 10,000 yds. concrete paving and 15,000 ft. concrete curb and gutter	J. R. Jones, Sherman St. Com. City Commission.
N. J.	Orange	Feb. 29	125,000 gals. light road oil	Paul Surmuy, Engr. Warsaw
Ind.	Sidney	Mar. 1	Constructing concrete road, cost \$23,000	S. H. Kent, City Clerk
Ont.	Hamilton	Mar. 1	Brick, creosoted wood blks., asphalt, broken stone & cem.	Dickinson & Watkins, Engrs
Ark.	Little Rock	Mar. 1	Paving several streets and constructing 48,000 ft. curb and gutter	A. C. Remley, City Engr.
Wis.	Appleton	Mar. 1	6,000 yards of sandstone paving and 10,000 yards brick, asphalt or concrete	R. G. Thomas, Co. Engr.
Ariz.	Globe	Mar. 1	Constructing 6 miles pavement	Geo. Anthes, City Clerk.
Ia.	Fort Madison	Mar. 1	Laying 3 miles brick and concrete pavement	Jonah Richards, Village Clerk.
W. Va.	Parkersburg	Mar. 1	Laying 37,270 sq. yds. brick and 24,898 yds. one course concrete pavement	Fred Goss, City Clerk.
O.	Struthers	Noon, Mar. 1	Constructing sidewalks, crosswalks, curbs and gutters	A. R. Callow, Comr. Pur. & Sup.
Wis.	Portage	Mar. 1	14,000 yds. new pavement; relaying 10,000 yds. of brick on new concrete base	O. E. Weller, Ch. State Rd. Commission.
O.	Cleveland	noon, Mar. 1	Grading, draining, paving and improving several streets	C. M. Weeks, County Engineer.
Md.	Baltimore	noon, Mar. 1	Hauling stone chips and oiling seven sections street highway requiring 1,085,879 gallons oil	Lloyd Rogers, County Surv.
O.	Marietta	Mar. 1	Improving and macadamizing roads	A. R. Watkins, City Aud.
Ind.	Columbus	Mar. 1	Constructing tarvia macadam roads, cost \$10,000	M. M. Marks, Boro President.
N. D.	Fargo	10 a.m., Mar. 1	Paving with first class pavement	Grant Davis, County Engr., Whitehouse Station
N. Y.	New York	2 p.m., Mar. 1	Furnishing 710 street signs; repaving with wood block 2,520 yds.	C. E. Tilson, Co. Auditor Park Engineer.
N. J.	Fleming	Mar. 1	Placing bituminous surface on 100,000 yds. of mac. roads	J. A. Dougherty, City Clerk.
Ind.	Winchester	Mar. 2	Constructing 6 1/2 miles stone road	P. D. Hawley, City Engineer.
O.	Cleveland	noon, Mar. 2	Furnishing road oil for park division	Board of Control
Ia.	Carroll	8 p.m., Mar. 2	Constructing 69,000 yds. sheet asphalt, asphaltic concrete or concrete and 75,700 yds. vertical fiber brick	County Commissioners.
Minn.	Hibbing	Mar. 2	Constructing road (Hibbing-Chisholm)	E. W. Edwards, County Aud.
Quebec	Montreal	Mar. 2	6,000 tons asphalt	L. R. Scott, County Clerk, Rockport.
Wash.	Stevenson	Mar. 4	Constructing roads	G. J. Ries, County Aud.
Ind.	Bedford	1 p.m., Mar. 6	Grading, paving and improving roads	G. W. Stoner, County Aud.
Mo.	Fairfax	4 p.m., Mar. 6	Grading road, 30,000 cu. yds.	Warren Mankey, County Aud.
Minn.	St. Paul	10 a.m., Mar. 6	Grading and improving roads	Albert Luedtke, Co. Aud.
Ind.	Jeffersonville	10 a.m., Mar. 6	Grading, draining and macadamizing road	C. M. Havens, Co. Aud.
Ind.	Fowler	1 p.m., Mar. 6	Constructing roads, estimated cost \$10,480	J. P. Hammond, Co. Aud.
Ind.	Brownstown	1.30 p.m., Mar. 6	Grading, draining and graveling road	L. S. Bowman, Co. Aud.
Ind.	Danville	Mar. 6	Constructing 2 miles gravel or macadam road	S. R. Sizelove, Co. Auditor
Ind.	Rensselaer	1 p.m., Mar. 6	Grading, paving and improving road	J. S. Lochard, Co. Auditor
Ind.	Richmond	11 a.m., Mar. 6	Furnishing six 2-horse graders	J. M. Allen, Co. Auditor
Ind.	Kentland	Mar. 6	Constructing macadam roads	Roy Slater, Co. Auditor
Ind.	Versailles	Mar. 6	Constructing crushed stone roads	I. H. Rutherford, Co. Aud.
Ind.	Greencastle	Mar. 6	Constructing 7-mile gravel road	City Clerk
Ind.	Newport	Mar. 6	Constructing gravel road	Board of Freeholders
Ind.	Salem	Mar. 6	Constructing road 16,340 ft. long	H. L. Shaner, City Engineer.
Ky.	Maysville	Mar. 6	Paving with brick and asph. and constructing conc. curb.	G. Smith, County Engineer.
N. J.	Camden	Mar. 6	29,637 yds. paving	John Gregg, County Auditor.
Va.	Lynchburg	noon, Mar. 6	10,500 sq. yds. pavement, 5,200 ft. granite curb, 3,000 sq. yds. granolithic sidewalks, sewers, duct, etc.	H. J. Rhue, County Auditor.
Ia.	Fort Dodge	Mar. 6	Road and bridge work	B. H. Moffit, County Auditor.
Ind.	Franklin	2 p.m., Mar. 6	Constructing gravel road	R. J. Teup, City Engineer
Ind.	Greenfield	10 a.m., Mar. 6	Constructing gravel roads	Clarence Sedgwick, Co. Aud.
Ind.	Williamsport	1 p.m., Mar. 6	Constructing gravel road	Blair Hughes, Rd. Supervisor.
Ind.	Indianapolis	Mar. 6	Furnishing 750,000 or more gallons road oil	
Ind.	South Bend	Mar. 6	Constructing and paving road	
Ala.	Camden	Mar. 6	Ten miles clay gravel or sand clay roads	



## BIDS ASKED FOR

STATE	CITY	RECD UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ill.	Sullivan	Mar.	6.. 5,170 yds. brick paving, 4,388 ft. concrete curb and gutter, and 3,022 cu. yds. of excavation	C. L. James, Engr., Mattoon
Miss.	Canton	Mar.	6.. Constructing 20 miles gravel road	X. A. Kramer, Engineer, Magnolia
Ind.	Portland	Mar.	6.. Constructing concrete road	W. H. Badders, Supt. of Cons.
Ind.	Portland	Mar.	6.. Constructing brick road, estimated cost \$26,108.50	O. O. Clayton, Supt. of Const.
Minn.	LeSueur Center	2 p.m., Mar.	6.. Five 2 or 4-horse road graders	T. F. Dunn, County Auditor.
Ala.	Huntsville	Mar.	6.. Constructing 3 1/4 miles macadam road	M. S. Bingham, Rd. Supv.
Kan.	Atchison	Mar.	6.. Laying 8,000 yds. brick and 10,000 yds. concrete paving	Frank Altman, City Engineer.
Minn.	St. Paul	10 a.m., Mar.	6.. Grading and improving road	G. J. Ries, County Auditor.
Mo.	St. Louis	Noon, Mar.	7.. Brick and macadam pavement, curbs, gutters, etc.	W. T. Findly, Sec. Bd. Pub. Service.
Ind.	Lawrenceburg	Noon, Mar.	7.. Grading, paving and improving roads	H. E. Lutherbeck, Co. Aud.
S. D.	Pierre	2 p.m., Mar.	7.. Grading road	J. H. Starkey, Co. Aud.
Ind.	Martinsville	Mar.	7.. 20,249 yds. brick road, concrete work and 3 miles of gravel road construction	T. Watson, County Aud.
O.	Cleveland Heights	Noon, Mar.	7.. Laying sidewalks on several streets	F. A. Pease Engineering Co., Marshall Bldg., Cleveland.
O.	Chicago Junction	Mar.	7.. Grading, curbing and paving 14,000 yds.	E. K. McMorris, Corp. Clk.
Ind.	Goshen	Mar.	7.. Curbing and paving (probably brick), cost \$87,000	H. J. Haverly, Engr.
Ind.	Bloomington	Mar.	7.. Constructing three gravel roads	W. F. Kinser, Co. Auditor
Fla.	Arcadia	Mar.	7.. Laying 20,000 yds. asphalt pavement	A. L. Durrance, Clk. Co. Comrs.
Ind.	Petersburg	2 p.m., Mar.	7.. Constructing rock road	John Gray, County Auditor.
Wash.	Davenport	Mar.	7.. Graveling 13 miles of Sunset Highway	G. G. Harvey, Co. Surveyor
Wis.	Richland Center	2 p.m., Mar.	7.. Constructing 33,553 yds. first-class pavement	Reuben Sutton, City Engr.
Pa.	Sunbury	Mar.	7.. One mile of brick pavement	G. F. Keefer, City Engineer.
Ind.	Kokomo	2 p.m., Mar.	8.. Five road graders and 10 road drags	W. L. Benson, Co. Aud.
Ind.	Covington	10 a.m., Mar.	8.. Constructing stone or gravel roads	H. W. Newlin, Co. Aud.
N. J.	Atlantic City	11 a.m., Mar.	8.. Laying 106,546 sq. yds. gravel, filling, 247,236 cu. yds. and constructing bridges	A. H. Nelson, Co. Engineer.
Ind.	Columbus	Mar.	8.. Constructing gravel roads	W. H. Scott, Co. Auditor.
Ind.	Brazil	Mar.	8.. Constructing stone and gravel road	W. O. Gaesser, Co. Auditor.
Ind.	Decatur	Mar.	8.. Constructing macadam roads	T. H. Baltzell, Co. Auditor
Ind.	Shelbyville	10 a.m., Mar.	8.. One-fourth mile macadam road	F. W. Fagel, Co. Auditor
Ind.	Madison	1.30 p.m., Mar.	8.. Grading, paving and improving road	C. S. Dabler, Co. Aud.
Wis.	Johnson Creek	4 p.m., Mar.	8.. Paving with brick or concrete and constructing curb and gutter	Village Clerk.
Ind.	Goshen	8 p.m., Mar.	8.. Grading and paving (2 jobs)	W. A. Books, City Clerk.
N. J.	Elizabeth	2.30 p.m., Mar.	8.. Constructing 39,439 yds. bituminous pavement on a concrete foundation	J. L. Bauer, Co. Engr.
N. C.	Burlington	Mar.	9.. Laying pavements on several streets	City Clerk.
Ind.	Indianapolis	10 a.m., Mar.	10.. Constructing gravel road	L. K. Fesler, County Auditor.
Ind.	Corydon	Mar.	10.. Constructing gravel and macadam roads	J. L. O'Bannon, Co. Auditor
Ind.	Elkhart	Mar.	10.. Paving 1.25 miles with asphalt, brick or concrete	Board of Public Works
Ind.	Bluffton	Mar.	11.. Constructing brick and asphalt streets and 15 miles stone road	C. T. Kain, Co. Auditor
Neb.	Omaha	Noon, Mar.	11.. Grading 28,000 cu. yds.	Frank Dewey, Clk. Co. Commissioners.
O.	Shaker Heights	Noon, Mar.	13.. Grading, curbing, paving and improving streets	B. W. Willard, Engineer, Marshall Bldg., Cleveland.
O.	East View	Noon, Mar.	13.. Grading, draining, paving and improving streets	F. A. Pease Engineering Co., Marshall Bldg., Cleveland.
Neb.	Hastings	Mar.	13.. Constructing 10 1/2 mi. street pavement	City Clerk.
Ill.	Danville	2 p.m., Mar.	14.. Constructing 57 miles concrete and brick roads	J. R. Moore, Co. Clk.
Tenn.	Winchester	noon, Mar.	15.. Constructing 125 miles macadam road	Franklin County Hwy. Comn.
N. Y.	Watertown	8 p.m., Mar.	17.. Constructing creosoted wood block pavement	E. W. Sayles, City Engineer.
Ind.	Muncie	10 a.m., Mar.	18.. Constructing two miles of country road	F. M. Williams, Co. Auditor.
Mo.	Bolivar	Mar.	20.. Constructing 10 miles oiled gravel roads	G. M. Upton, Secy. Road Dist.
Fla.	Deland	2 p.m., Mar.	20.. Improving 45 miles of road, including 285,807 yds. of pavement and 378,532 ft. of curb	J. B. McCrary Co., Engrs., Atlanta, Ga.
Tenn.	Morristown	Apr.	1.. Constructing roads, cost \$150,000	H. B. Havelly, Engineer.
W. Va.	Charleston	Apr.	1.. 16,000 yds. brick pavement	J. N. Clark, City Engr.
N. D.	Mandan	10 a.m., Apr.	3.. Concrete mixer, scrapers, graders and road ploughs	Lee Nichols, County Auditor.
SEWERAGE				
Ia.	Charles City	10 a.m., Feb.	26.. 33,000 feet tile ditch, cost \$18,500	J. A. Cutler, Co. Auditor.
O.	Bucyrus	Feb.	26.. Constructing tile drainage ditch	H. A. Keller, Engineer.
Ind.	Frankfort	Feb.	26.. Laying 7,800 ft. 8 to 18-in. tile drainage ditch	W. E. Lowman, Drainage Com.
Minn.	St. Paul	10.30 a.m., Feb.	28.. Laying sewers in several streets (6 jobs)	August Hohenstein, Pur. Age.
O.	Cincinnati	noon, Feb.	28.. Constructing sewers in several streets	C. F. Hornberger, Dir. Pub. Ser.
N. J.	Montclair	Feb.	28.. Constructing storm sewers	E. S. Closson, Twn. Engr.
Wis.	Randolph	2 p.m., Feb.	28.. 9,360 ft. 6 to 12-in. vitrified sewers, 1,370 ft. 8-in. c. i. pipe, sewage disposal plant, manholes, etc.	J. O. Jones, Village Clerk.
Minn.	Crookston	10 a.m., Feb.	28.. Constructing ditch, cost \$3,375	H. J. Welte, Co. Auditor.
Ind.	Michigan City	Feb.	28.. Constructing three sewers, estimated cost \$2,100	City Engineer.
Ind.	Kendallville	Feb.	29.. Sewer system, requiring 21,891 ft. 8 to 24-in. pipe, 322 ft. 8 to 24-in. c-i. pipe, 44 manholes, 20 flush tanks, 143 house drains and one sewer lift, estimated cost \$38,845	W. E. Sawyer, City Engr.
W. Va.	Martinsburg	Feb.	29.. Sewage disposal system at postoffice	Custodian of Postoffice
Minn.	Jackson	10 a.m., Feb.	29.. Repairing and extending tile ditch	P. B. McKellar, Co. Aud.
Ont.	Toronto	Noon, Feb.	29.. Constructing private drains throughout city for one year	Board of Control.
Ark.	Malvern	Mar.	1.. Material for constructing sewer system	G. E. Mattison, Chairman.
Wis.	Oconto Falls	Mar.	1.. Constructing sewer system	William Campbell, City Clerk.
Mich.	Grand Rapids	Mar.	1.. Constructing Imhoff tank and sludge bed	J. R. Rumsey, Engineer.
Ill.	Chrisman	Mar.	1.. Sewer construction, estimated cost \$11,971	C. P. Lycan, Engr., Paris
O.	Bucyrus	1 p.m., Mar.	1.. Constructing tile drainage ditch	H. A. Keller, Co. Engr.
La.	DeRidder	Mar.	1.. Constructing sewer system and disposal plant	X. A. Kramer, Engr., Magnolia, Miss.
O.	Cleveland	noon, Mar.	2.. Constructing sewers in several streets	A. R. Callow, Comr. Pur. & Sup.
Ill.	Maywood	8 p.m., Mar.	2.. Constructing 1,712 ft. vitrified sewer	R. E. Williams, Engineer, 118 N. LaSalle St., Chicago.
Ind.	Hammond	10 a.m., Mar.	3.. Constructing 12-in. vitrified sewer	Board of Public Works.
Ind.	Plymouth	2 p.m., Mar.	4.. Constructing drainage ditch requiring 6,960 ft. 10 and 12-in. tile	A. W. Thomas, Co. Surveyor.
Ill.	Sterling	2 p.m., Mar.	4.. Constructing drainage ditch	C. E. Sheldon.
Va.	Lynchburg	noon, Mar.	6.. Laying 6,000 ft. sewer, 80,000 ft. fiber duct and 110 manholes	H. L. Shaner, City Engineer.
Mont.	Polson	Mar.	6.. Laying 15,000 ft. 8 to 18-in. sewers	Long & Olsen, Engrs.
Ga.	Savannah	Noon, Mar.	6.. Const. 35 miles 8 to 60-in. sanitary & storm wtr. sewers	E. R. Conant, Chief Engr.
Fla.	Largo	Noon, Mar.	6.. Constructing drainage ditches	Isham Randolph & Co., Engrs., Jacksonville
Mont.	Billings	Mar.	7.. Constructing storm water sewer system, cost \$63,000	E. M. Sneckenberger, City Eng.
Okla.	Tonkawa	8 p.m., Mar.	7.. Constructing sanitary lateral sewers	Benham Engrs., Co. Colcord Bldg., Oklahoma City
Ind.	Crawfordsville	Mar.	7.. 300 ft. 8-in. sewer	C. M. Harlan, Clk. Bd. of Pub. Works.

## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
O., Cleveland Heights	Noon, Mar.	7..	Constructing sewer and water connections.....	F. A. Pease Engineering Co., Marshall Bldg., Cleveland.
Ind., Martinsville	Mar.	7..	Constructing 36-in. concrete sewers.....	T. Watson, Co. Aud.
Wis., Johnson Creek	4 p.m., Mar.	8..	Constructing storm sewers and catch basins.....	Village Clerk.
Minn., Redwood Falls	2 p.m., Mar.	8..	Constructing three ditches, requiring 85,000 ft. of 6 to 18-in. tile.....	L. P. Larson, Co. Auditor.
O., Wooster	Mar.	8..	Constructing sanitary sewer.....	O. E. Glerow, City Engr.
Minn., Moorehead	2 p.m., Mar.	9..	Constructing and repairing ditches.....	A. O. Houghlum, Co. Aud.
Ind., Fort Wayne	Mar.	9..	2,436 ft. 24 to 54-in. pipe, brick and concrete sewer, cost \$26,000.....	W. W. Chaffin, Asst. City Engr.
Minn., Alexandria	10 a.m., Mar.	9..	Constructing drainage ditches.....	C. H. Jensen, Co. Aud.
Minn., Blue Earth	1.30 p.m., Mar.	11..	Constructing three tile ditches.....	Seth Dean, Eng., Glenwood.
O., Shaker Heights	Noon, Mar.	13..	Constructing storm and sanitary sewers.....	B. W. Willard, Engineer, Marshall Bldg., Cleveland.
O., East View	Noon, Mar.	13..	Constructing storm sewers and catch basins.....	F. W. Pease Engineering Co., Cleveland.
N. J., Newark	Mar.	14..	Constructing 2,700 ft. Passaic Valley trunk sewer.....	Passaic Val. Sew. Commission
la., Wall Lake	Apr.	1..	Straightening and deepening river and draining swamp.....	Seth Dean, Eng., Glenwood.
Mich., Macon	Apr.	1..	Constructing branch of Macon drain.....	D. S. Sullivan, Co. Drain Comr.
Wis., Sheboygan Falls	Apr.	1..	Constructing 2 miles 8 to 15-in. sewer in eight streets.....	F. R. Kroeger, City Clerk.
Mont., Billings	Apr.	4..	9,670 ft. 18 to 54-in. concrete and pipe sewer, cost \$66,350.....	E. M. Sneckenberger, City Engr.
Argentina, Buenos Aires	Apr.	24..	Furnishing machinery.....	Dept. Obras Sanitarias de La Nacion.
<b>WATER SUPPLY</b>				
Ga., Macon	Feb.	27..	5,000,000 gal. steam turbine centrifugal pump.....	Bd. of Water Comrs.
O., Dayton	Feb.	28..	42-ft. steel stand pipe, 100 ft. high.....	H. C. Wight, Supt. of Water.
Wash., Seattle	11 a.m., Feb.	28..	Furnishing pipe, fittings and valves.....	Col. G. D. Davis, Arcade Bldg., Seattle.
Ida., McCammon	Feb.	29..	17,400 ft. 4 to 8-in. c. i. pipe line, well, 50,000-gal. tank and tower, pumps and power house.....	Cotton & Wilson, Engrs., Idaho Falls.
O., Columbus	Noon, Feb.	29..	15,000 ft. 3/4 to 2-in. galvanized iron pipe, 120 tons lead pipe, 3,600 tons c. i. pipe and 260 tons special castings.....	G. A. Borden, Pres. Bd. of Pur.
Ont., Hamilton	Mar.	1..	Furnishing c. i. specials and hydrants.....	S. H. Kent, City Clerk
Neb., Bayard	Mar.	1..	Laying 7,000 ft. 4 to 8-in. pipe and constructing well and waterworks, cost \$12,000.....	Selzer and Finley, Engrs., Scottsbluff.
La., DeRidder	Mar.	1..	Extending water pipe lines.....	X. A. Kramer, Engineer, Magnolia, Miss.
Wash., Colville	Mar.	1..	Const. 3 miles 10 & 12-in. pipe & concrete reservoir & dam; cost, \$20,000.....	City Clerk
Ont., Ottawa	noon, Mar.	1..	Constructing pumping stations and electric sub-station and furnishing main piping, valves and specials.....	John D. McCrae, Engr., Booth Bldg.
Ark., Malvern	Mar.	1..	Materials for constructing water system.....	G. E. Mattison, Chairman.
Ont., Hamilton	Mar.	1..	Furnishing lead pipe and cement.....	City Clerk.
Ont., Collingwood	8 p.m., Mar.	1..	Furnishing pumping machinery and constructing water tower.....	Water & Light Dept.
Ill., Maywood	8 p.m., Mar.	2..	Laying 2,715 ft. 4 and 6-in. c. i. pipe.....	R. E. Williams, Engineer, 118 N. LaSalle St., Chicago.
O., Youngstown	noon, Mar.	2..	Furnishing 2,000 tons alum.....	Dan Jones, Clk. Bd. Pub. Ser.
D. C., Washington	2 p.m., Mar.	2..	Constructing cover for reservoir.....	Chief Clerk, Engineer Dept., District Bldg.
O., Middletown	noon, Mar.	3..	Furnishing 76 tons c. i. water pipe and 3,500 lbs. fittings.....	City Commission.
O., Cleveland	noon, Mar.	3..	Furnishing c. i. pipe and specials and 30 and 36-in. rivetted steel pipe.....	A. R. Callow, Comr. Pur. & Sup.
D. C., Washington	Mar.	6..	400 tons sulphate of alumina.....	U. S. Engineer
N. Y., Albany	3 p.m., Mar.	6..	Furnishing c. i. pipe and special castings.....	Isadore Wachsmann, Secy., Bd. of Contract and Supply.
N. C., Newbern	Mar.	6..	Drilling wells and installing pumps.....	F. T. Patterson, City Clerk.
Kansas, Kiowa	Mar.	7..	Waterworks improvement.....	H. A. Bailey, Mayor.
Wis., Milwaukee	Mar.	8..	Extension to Linwood Ave. intake, tunnel.....	F. G. Simmons, Comr. P. Wks.
N. C., Durham	Mar.	8..	Constructing earth and concrete reservoir and laying 1,400 ft. 10 to 24-in. c. i. pipe.....	Gilbert C. White, Engineer.
Tex., Fort Bliss	Mar.	8..	Constructing pumping station and pipe lines.....	Depot Quartermaster, El Paso
Okl., Jones	1 p.m., Mar.	10..	Constructing waterworks system and electric light plant.....	C. A. Keyes, Town Clerk.
O., East View	Noon, Mar.	13..	Constructing watermains in several streets.....	F. A. Pease Engineering Co., Cleveland.
O., Shaker Heights	Noon, Mar.	13..	Constructing watermains.....	B. W. Willard, Village Eng., Marshall Bldg., Cleveland.
Neb., Crofton	2 p.m., Mar.	14..	Laying 5,686 ft. 4-in. pipe, 13 hydrants and 8 gate valves, cost \$5,360.....	J. D. Clair Smith, Engr., Hartington.
N. C., Wilson	Mar.	15..	Constructing waterworks system, cost \$95,000.....	City Clerk.
Minn., Chisholm	Mar.	20..	Furnishing 6,000 ft. 6-in. c. i. pipe.....	C. J. Sullivan, Supt. of Water.
La., New Orleans	Noon, Mar.	22..	Constructing addition to pumping station.....	G. G. Earl, Gen. Supt. Water & Sewer Bd.
Ala., Cullman	Apr.	1..	Laying 2 miles of 6-in. water mains; cost \$12,000.....	A. G. Coe, City Clerk.
<b>MISCELLANEOUS</b>				
N. J., Perth Amboy	8.30 p.m., Feb.	26..	125,000 gallons of fuel oil.....	Wilbur LaRoe, City Clerk.
O., Lima	noon, Feb.	28..	Installing and furnishing a 20-ton auto truck scale.....	A. L. Metheany, Dir., Public Service.
Ind., Kokomo	10 a.m., Feb.	28..	Disposing of garbage.....	Ben Havens, City Clerk.
Ore., Klamath Falls	Feb.	28..	Furnishing street flushers.....	City Clerk.
La., New Orleans	3 p.m., Feb.	29..	Constructing levees.....	Leigh Carroll, Pres. Bd. of Levee Comrs.
D. C., Washington	Mar.	1..	Furnishing five gasoline tractors of caterpillar type.....	Chief of Ordnance, U. S. Army.
Alaska, Ketchikan	Mar.	1..	Furnishing 300 bbls. Portland cement.....	Light House Inspector.
Mass., Boston	Noon, Mar.	2..	Constructing section F, Dorchester tunnel.....	Boston Transit Commission, B. L. Beale, Secy.
D. C., Washington	Mar.	2..	Furnishing 8 gasoline trucks.....	Chief of Ordnance, U. S. Army.
O., Cleveland	noon, Mar.	2..	Dredging in Cuyahoga river.....	Commissioner of Engineering, Room 405, City Hall.
Mass., Williamstown	noon, Mar.	3..	Concrete retaining wall 180 ft. long and 7 1/2 ft. high.....	G. W. Grundy, Clerk
N. J., Plainfield	8 p.m., Mar.	6..	Furnishing 2,000 tons crushed stone and screenings; also crosswalks and curbing.....	J. T. MacMurray, City Clerk.
Ga., Savannah	Noon, Mar.	9..	Furnishing three motor cycles.....	County Commissioners.
Wis., Milwaukee	Mar.	10..	Constructing concrete breakwater and removing old pier at Racine harbor.....	U. S. Engineer Office.
Wyo., Ft. Laramie	2 p.m., Mar.	10..	Constructing 5 1/2 miles main canal and doing other irrigation work.....	U. S. Reclamation Service.
D. C., Washington	Mar.	13..	Constructing postoffice at Oklahoma, Okla.....	J. A. Wetmore, Supv. Archt.
D. C., Washington	Mar.	17..	Constructing postoffice at Charles City, Ia.....	Supervising Architect, Treasury Department.
Ind., Vincennes	3 p.m., Mar.	23..	Constructing 37 miles of levees.....	J. F. Spiker, Construction Comr., Noble Block.
D. C., Washington	Mar.	24..	Constructing postoffice at Taylorville, Ill.....	Treasury Dept.



## STREETS AND ROADS

**Birmingham, Ala.**—Construction of highway to Warrior River has been recommended.

**Tuscaloosa, Ala.**—Road three-quarters of mile long will be built from main street of town to municipal wharf at cost of \$5,000.

**Miami, Ariz.**—Gila County Board of Supervisors have acted upon a petition of Miami citizens requesting organization of special road district to be known as "Special Road District No. 1." Road district will be one mile wide and three miles long. Election will be held March 4, 1916, to determine whether or not it is the will of the people to organize this district.

**Burlingame, Cal.**—The largest paving and grading contract ever let by any municipality west of the Rocky Mountains is soon to be let in this city. It is estimated that work will cost in neighborhood of \$325,000. Work will be done in Easton and Burlingame Park additions. Bids for work will be called for shortly.

**Pomona, Cal.**—City contemplates \$200,000 bond issue for construction and repairing of roads. Committee has been appointed to investigate conditions and report back at mass meeting to be held shortly.

**Richmond, Cal.**—City council has instructed City Engineer Chapman to prepare plans and specifications for paving 23d St. from Macdonald Ave. northerly to city limits with asphalt.

**Sacramento, Cal.**—E. H. Rollins & Sons and First Trust and Savings Bank of Chicago have purchased \$2,300,000 of state bonds from State Treasurer Friend W. Richardson at par and accrued interest. Bonds were the remaining \$1,500,000 of state highway issue and \$800,000 of the \$1,000,000 issue voted for state building at San Francisco.

**Sacramento, Cal.**—City Commission has passed resolution of intention to pave E St. J. C. Morse is superintendent of streets.

**San Francisco, Cal.**—The supervisors' street committee Feb. 12 recommended an appropriation of \$10,000 for constructing new sidewalks on Van Ness Ave., McAllister, Polk and Grove Sts. around the new city hall. Committee overruled objections of property owners to grading, paving and other work planned for Sanchez St., between 19th and 20 Sts., and Cumberland St., between Sanchez and Noe. Committee decided to recommend that Judah St., between 17th and 18th Aves., be graded and paved, and that sewer be laid there. Two crossings also will be improved. Improvement of 25th Ave., between Balboa and Cabrillo Sts., at an estimated cost of \$14,300, has been recommended by works board.

**Yreka, Cal.**—City Trustees have adopted resolution to submit to voters April 10 matter of \$10,000 bond issue for a city hall and \$2,500 for widening 4th St. leading to Court House.

**Jacksonville, Fla.**—Commissioner Perling has recommended bond issue of \$1,000,000 for good roads.

**Key West, Fla.**—Some time in the near future people of Monroe County will be given an opportunity to vote for or against bond issue for building of public roads on Key Largo, Big Pine Key, Mattacumbe, Cape Sable and such other parts of the country as it can be shown that roads are needed, including sufficient amount for repair of county road and its connections with Stock Island. County commissioners have completed arrangements with Biscayne Construction Co. whereby they will make surveys and estimates of cost of roads needed and in event they are not accepted by people at election there will be no charge of services rendered at this time. It is contemplated to bond for sufficient amount to build 22-mile road on Key Largo, 10 miles on Big Pine Key, 10 miles on upper Mattacumbe and road connecting Cape Sable settlement with road being built by Dade County to Dade and Monroe County line.

**Kissimmee, Fla.**—Qualified freeholders of third county commissioners' district, which includes St. Cloud and Narcoossee, will vote March 11 on petition to form separate road district and issuing of \$150,000 in bonds to build hard surfaced road from St. Cloud to Brevard county line, there to join road to East Coast at Melbourne. Election call was issued by board of county commissioners at their meeting held Feb. 11.

**Palatka, Fla.**—Election will be held

Mar. 14 to determine on construction of special road and bridge just outside Palatka to Orange Springs to be paid for by issue and sale of bonds in sum of approximately \$80,350.

**Palmetto, Fla.**—Movement is on foot for road from this city to Hillsborough.

**Tallahassee, Fla.**—City council has voted to pave Park Ave. on both sides east from intersection with Monroe St.

**Tifton, Ga.**—See "Water Supply."

**Buckheart, Ill.**—Township will vote at the April election on proposition to levy six-mill tax for period of five years for purpose of constructing hard roads in township.

**Ottawa, Ill.**—Council contemplates resurfacing or repairing of downtown district. The proposition is now up to board of local improvements and from expressions given by members of that board, a repaving job will probably be one adopted.

**Quincy, Ill.**—Movement is on foot for widening of Harrison St.

**Quincy, Ill.**—City will lay some paving this season. James M. Gardner is acting city engr.

**Covington, Ind.**—The \$6,700 issue of gravel road bonds was sold for par, accrued interest and \$121.75 premium to Fletcher American National Bank, of Indianapolis.

**Fort Wayne, Ind.**—Board of works will adopt a resolution for opening a street from South Wayne Ave. to Indiana Ave., to connect Oakdale and Oakwood Aves. and make a continuous street with Dayton Ave., from Broadway to Fairfield Ave.

**Fort Wayne, Ind.**—Board contemplates improvements on many streets.

**Indianapolis, Ind.**—City council will be asked shortly to pass ordinance authorizing board to proceed with plans for paving on Meridian St. over remonstrance which has been filed by property owners.

**Muncie, Ind.**—Special committee of city council recently passed resolution calling for paving of Powers St. from Liberty St. to Kilgore Ave. It is planned to pave street with brick. Board also passed resolutions calling for repairing of all downtown streets in need of repairs. Following is a list of the streets that are to be repaired and put in good condition: Gilbert St. from Walnut to High; Charles St. from Mulberry to High; Howard St. from Elm to High; Adams St. from Walnut to High; Washington St. from Mulberry to High; High St. from Charles St. to the High St. bridge; Mulberry St. from Charles St. to Big Four Railroad.

**Muncie, Ind.**—See "Sewerage."

**Richmond, Ind.**—Boulevard drives from west approach of proposed South G St. bridge, north to National Rd. along west bank of the Whitewater, will be petitioned for in near future.

**Missouri Valley, Ia.**—Ninety-six thousand dollars will be expended here in paving the coming season, according to action of city council. Contract will be awarded in near future.

**Muscatine, Ia.**—Board of supervisors of Muscatine county have decided to build proposed Keokuk Lake Rd. from Eight Mile bridge to Burlington Rd. Actual work on road, however, will not be begun until drainage system in Drainage Dist. No. 13 has been completed. Road will extend distance of about half a mile in Fruitland township and remaining two miles will extend across Township Seventy-six.

**Mankato, Kan.**—Citizens are discussing plans for improvement of streets and council has authorized survey to be made under supervision of state engineer's office.

**Cadiz, Ky.**—Question of bond issue of \$150,000 for good roads is being discussed.

**Emmence, Ky.**—Citizens are in favor of bond issue for road improvement.

**Lexington, Ky.**—County officials are preparing to take up road work within the next few weeks and push to completion model roads which are under contract. An effort will be made to let out contracts for improving several miles more of important pikes of the county, and it is believed that by fall main thoroughfares of the county will be improved and work on small roads of the county will have been started. Roads which are under construction are Carlisle and Sharpsburg, the Maysville and Lexington, Carlisle and Bartersville Pikes and Carlisle and Park's Ferry and Carlisle and East Union Rds.

**Lexington, Ky.**—A record sale of Lexington street improvement bonds was established when former Commissioner of Public Finance K. G. Pulliam paid 1 per cent. and accrued interest for \$5,-

583.63 worth of street improvement bonds provided for South Broadway sold by Mayor Rogers. First and City National Bank was a competitive bidder.

**Louisville, Ky.**—Petition has been filed for improvement of Center St. from Thomas to Jay. Petition is signed by ten of twelve property owners, and it is probable improvement will be ordered. City Engineer Mann was directed to prepare plans and specifications for improvement.

**Maysville, Ky.**—City will let contracts for approximately \$100,000 worth of street paving within next 30 days. J. D. Eaton is chairman internal improvement committee.

**Newport, Ky.**—City commissioners will expend \$20,000 for new streets.

**Stanford, Ky.**—County court has called an election on issuance of \$150,000 in bonds for benefit of roads in this county, in answer to petition. Date is April 15. Sentiment is gaining in favor of bonds and it is generally believed that proposition will carry.

**Whitesburg, Ky.**—County Judge Henry T. Day and members of Letcher Fiscal Court are circulating petition in Letcher county asking that road bond election be held April 15 so that people may be given opportunity of voting bonds to amount of \$200,000 for further prosecution of good roads work now underway around Whitesburg.

**Bangor, Me.**—Work on Jackman and Moosehead Lake highway is to begin at once. After many delays right of way has been obtained by Maine Highway commission and February bids were asked for clearing and grubbing about 22 miles of proposed road. These bids will be opened at office of commission on February 23 at 11 a. m. Appropriation of \$22,500 was authorized and additional subscriptions were obtained along route to make total amount available about \$46,000. New highway will run from town of Jackman along Moose river to town of Rockwood, on shore of Moosehead Lake, directly opposite Kineo.

**Baltimore, Md.**—Bids have been opened for paving of the upper and lower sections of Ellicott Driveway, and brought out keen competition. These proposals were under alternative system, and closest competition seemed to be between Baltimore Asphalt Block & Tile Co. and Patrick Flanagan & Sons. Both offered to lay concrete for \$1.15 a sq. yd. Other bidders were Consolidated Engineering Co., W. H. and F. C. Thompson, M. M. Elkan and the American Paving Co. This contract is for commissioners for opening streets. All bids were referred to street opening commissioners for tabulation and report. Other bids were opened for sheet asphalt on Hollins St. from Calverton Rd. to Frederick Ave. and from Bentalou to Gilmor St. Prices for this work ranged from \$1.15 to \$1.45 a sq. yd., and under an official tabulation lowest bidder seems to be American Paving Co. Other bidders were Consolidated Engineering Co., Patrick Flanagan & Sons, Patrick Reddington & Sons and Baltimore Asphalt Block and Tile Co. Recut granite block bids were opened for several streets in East and South Baltimore and central section of the city. They were referred to paving commission for tabulation and report, as were bids for sheet asphalt work on Hollins St.

**Takoma Park, Md.**—Property owners and residents along Carroll Ave., beyond Flower Ave., appealed Feb. 4 to mayor and town council of Takoma Park, Md., for improvement of roads in that vicinity. Delegation attended meeting and was given a hearing by town authorities. Matter was taken under advisement by council.

**Beverly, Mass.**—City is contemplating widening of Cabot St.

**Detroit, Mich.**—More than 100 taxpayers, most of them business men having interests in downtown section of city, have petitioned Common Council to open Madison Ave. with uniform width of 100 ft. from intersection of Randolph St. to intersection of Beaubien St. and Gratiot Ave.

**Duluth, Minn.**—Movement is on foot for paving of 59th St.

**Brookhaven, Miss.**—Special election will be held Mar. 21 to vote on \$125,000 bond issue to extend highways.

**Laurel, Miss.**—See "Sewerage."

**Chillicothe, Mo.**—Resolution to grade, combine curb and gutter, pave and otherwise improve Monroe St. from the north side or line of Irving Ave. north for a distance of 180 ft. has been approved by council.

**Chillicothe, Mo.**—Committee will recommend to Council that contract for paving on eleven streets be awarded to John F. Meek at following bid: Dickenson from Clay to Webster—Paving \$1.2 sq. yd.; curbing, 30 cts. lin. ft.; excavating, 25 cts. cu. yd.; oak headers, \$30 per thousand. Mr. Meek's bid was the same on the remainder of Dickenson St. to Bryan St. 3d St. from Vine to Washington. On Woodward St. from Clay to Calhoun and Jefferson Sts. his bid was the same with the exception of paving, which was \$1.55. On Monroe St. his bid was the same with the exception of paving, which was \$1.58, and on Cherry from Polk to Bryan the bid the same with the exception of paving, which was \$1.64. Two other bidders and their bids follow: C. A. Stewart; Dickenson St. from Clay to Webster—Paving, \$1.69 sq. yd.; curbing, 30 cts. lin. ft.; excavating, 25 cts. cu. yd.; oak headers, \$30 thousand. This same bid was made on Dickenson St. from Bryan to Polk St. The bid on Dickenson St. from Webster to Calhoun, Monroe St., and Cherry St. from Polk to Bryan were the same with the exception of paving, which was \$1.67. The bids on Dickenson St. from Polk to Calhoun, Woodward St. from Calhoun to Jackson, 3d St. from Vine to Washington and Jefferson were also the same with the exception of the paving, which was \$1.65. Rees Brothers' bids on entire eleven streets were the same, as follows: Paving, \$1.69 sq. yd.; curbing, 30 cts. lin. ft.; excavating, 25 cts. cu. yd.; oak headers, \$40 per thousand.

**Butte, Mont.**—City Council has decided that Butte's business district will be paved with wood blocks and cost will be in the neighborhood of \$112,000.

**Asbury Park, N. J.**—If the \$7,000,000 "good roads" bill recently introduced by State Senator M. Egan, of Hudson County, becomes a law, Monmouth County will get 50 miles of fine boulevard which will cost state just \$1,000,000.

**Atlantic City, N. J.**—The state highway department at Trenton has formally approved the plans and specifications for the building of the Absecon-Atlantic City Blvd., and bids for the construction of the new highway will be received by the Atlantic County board of chosen freeholders at their regular meeting on March 8.

**Atlantic City, N. J.**—Following passage of Senator Edge's bill authorizing State Road Department to give state aid to new county roads, Atlantic county freeholders have approved plans for construction of boulevard between this city and Absecon. Eighty thousand dollars has been pledged by Commissioner Stevens for this project, which will cost about \$200,000.

**Elizabeth, N. J.**—Plans are being considered for additional street paving.

**New Brunswick, N. J.**—An ordinance has been passed providing for regulating, grading, curbing and guttering of Codwise Ave., from Talmadge St. running southwest to city limit line.

**Newton, N. J.**—Sussex County Board of Freeholders Feb. 14 passed a resolution authorizing County Engineer Harvey Snook to survey road from Newton to Fredon, preparatory to making improvements, including macadam surface. The becoming effective of resolution is contingent on the Fredon Township Committee's voting to defray 10 per cent of cost. The section of road is about three miles in length, and cost of improving it will be approximately \$30,000.

**Pasadena, N. J.**—City clerk will be directed to advertise for proposals for construction of sheet asphalt pavement in Dayton Ave.

**Sayreville, N. J.**—A delegation of a score or more residents and taxpayers in Sayreville township appeared before board of freeholders Feb. 14 for purpose of getting county to macadamize road from South River drawbridge to Miller's Corner and on to deep cut near South Amboy, a distance of a little over 4 miles. Freeholders expressed themselves in favor of improvement if it could be done with state aid. It was found that this road had never been improved under state road law and it is probable that favorable action will be taken.

**Albany, N. Y.**—Twelve miles of state highways and 23 to 25 miles of county highways in Onondaga county will be placed under contract this year. This was announced as result of the conference held here between county officials and Commissioner Edwin Duffey, Second Deputy Commissioner Frederick W. Sarr and others of State Highway Department. Plans for the maintenance division of State Highway Department call

for expenditure in Onondaga county of over \$245,000 on repair and reconstruction of highways. To this will be added sums contributed by localities, making more than \$600,000 worth of work to be undertaken in county during 1916.

**Binghamton, N. Y.**—Movement is on foot for paving of Robinson St.

**Jamaica, L. I., N. Y.**—Delegation from Jamaica South held a conference with Borough President Connolly Feb. 15 relative to improvement of Foster Meadow road from Springfield to Hook Creek. President Connolly stated that he was in favor of idea and would take necessary steps to bring about improvement and also endeavor to have cost borne by city at large.

**Rochester, N. Y.**—Property owners in Oak St. between Highland Ave. and Roby St. will be assessed \$13,777.42 as their share of cost of paving that street with asphalt if bid of Guy B. Dickison, submitted to board of contract and supply, is accepted. This is lowest of the estimates. Mr. Dickison also submitted low figure for vitrified brick pavement, \$16,675.92. This is at rate of \$2.07 a square yard.

**Southampton, L. I., N. Y.**—Sum of \$1,600 is to be used in extending concrete sidewalks in village limits.

**Yonkers, N. Y.**—Elimination of four remaining grade crossings in city is asked by resolution introduced Feb. 14 by Alderman Davis and passed by common council. Resolution calls for appointment of committee of four who, together with council president, will go to Albany to confer with state engineer relative to crossings.

**Burlington, N. C.**—Bids will be asked for construction of permanent pavements on quite a number of city street, bids to be opened Mar. 9. City will make a start with about \$50,000 of street work to begin with and will probably be called upon to double or treble that amount before work is finished.

**High Point, N. C.**—The Guilford county board of commissioners has granted request of High Point and Greensboro to connect two cities with asphalt-concrete road. This road is to cost about \$12,500 a mile, and work will begin on it if present plans are carried out, within 10 days. The work will be done by contract.

**Shelby, N. C.**—City Feb. 12 voted favorably on bond issue of \$40,000 for good roads.

**Washington, N. C.**—County Commissioners have sold \$50,000 Washington Township road bonds to Otis & Co. of Cleveland, O. Ratification of their acceptance has been received. Bid was \$51,000 with accrued interest from Feb. 1, and all expenses for preparation of bonds to be paid by the purchasers.

**Canton, O.**—Between 20 and 30 miles of Stark county roads are to be paved this year either with brick or macadam, and County Commissioners probably will issue at least \$300,000 in bonds to pay for work, it was said by Commissioners Leonard and Ake.

**Lima, O.**—Legislation for paving of 20 streets will be recommended in next meeting of city council, Feb. 21. Public improvements committee held meeting Feb. 12 to decide improvements first to be made. More than 40 streets await paving, for which petitions have been filed. Total cost of first 20 improvements will be more than \$200,000, of which share of city will be about \$30,000.

**Toledo, O.**—Councilman J. W. Brown has obtained approval of council improvement committee for paving of Oakdale Ave. from East Broadway to Oak St. He will present petition for paving of Oak St. from C. H. & D. to city line.

**Woodsfield, O.**—There will be \$30,000 spent in improvement of Woodsfield-Malaga road this summer. County commissioners have granted \$15,000, which will be duplicated by state highway commission, making \$30,000 to be used in grading, bridging and putting in culverts.

**Ada, Ok.**—Good Roads Club of this city Feb. 11 took definite action to at once co-operate with county commissioners in rebuilding of roads washed away by recent floods. Successful business men only were put as supervisors of various roads leading out from this city. The commissioners agree to donate one dollar out of state road fund for every dollar raised by private subscription. Committees are industriously working in every part of city and as soon as weather permits active work will begin on the bridges and roads.

**Portland, Ore.**—To meet cost of repairs to streets and prevent further slides Council on recommendation of Commissioner Dieck of Department of Public

Works, appropriated \$5,000, and authorized him to employ men and hire equipment as it is needed in work. He asked for \$15,000, but other city commissioners demurred to such an expenditure. It was decided that city should care only for streets and that private owners must protect their own property.

**Berlin, Pa.**—Resolution favoring construction of highway to connect Lincoln Highway at Jennertown and Maryland State line, by way of Berlin, was adopted Feb. 9 at meeting of Berlin Board of Trade, which also went on record as favoring addition of a tax of one mill by County Commissioners for three years to provide funds for building the proposed road. The Highways Committee was instructed to go to Somerset and confer with County Commissioners in regard to the construction of proposed highway and to report at next meeting, which will be Feb. 21.

**Butler, Pa.**—Council has given instruction to supervisor to cut down the hump on Franklin St., between East Jefferson and East North, to be done as soon as possible. Cut of about 5½ or 6 feet will be necessary at highest point.

**New Castle, Pa.**—Councilman Mayne Feb. 14 introduced resolution to council whereby Traction Co. will be notified that city intends to repave Highland Ave. between Boyles and Moody.

**New Castle, Pa.**—Paving of Adams, Arlington and other east side streets is being considered.

**Newcastle, Pa.**—Plans are being discussed for connecting this city with New Wilmington by brick road at estimated cost of \$100,000.

**Washington, Pa.**—Board is contemplating purchase of road machinery.

**Wilkes-Barre, Pa.**—Petition has been received from property owners of Meade St. for the paving of that thoroughfare and another petition for the paving of Dougher lane. Request was received for circulating of paving petition for Madison St. from terminus of that thoroughfare to Maple St. An ordinance was presented recommending paving of Beach St. between Blackman and McLean Sts., with asphalt and another ordinance was presented recommending paving of Garnet lane.

**Providence, R. I.**—Construction by city, at cost of approximately \$1,000,000, of an 80-foot highway through South Providence section, parallel to and midway between Eddy St. and Allen's Ave., to relieve traffic conditions in these highways and to rejuvenate property values in district, is advocated by City Plan Commission in its second annual report, ready for city council.

**Bristol, Tenn.**—With sale Feb. 12 of a \$250,000 issue of good roads bonds, which were bought by F. B. Caldwell of this city, representing an eastern bank, Hawkins county will begin road work as soon as weather conditions will permit. First road to be built will be that between Rotherwood and Red Ridge ferry.

**Dyersburg, Tenn.**—City has passed ordinances for construction of approximately 15,000 sq. yds. of asphalt concrete pavement on concrete base, with concrete curb and gutter. Storm drainage included. Work will probably be paid for in cash. Date for letting of contract not set. L. E. Carne, Mayor.

**Knoxville, Tenn.**—Proposed to construct seven state roads in Knox County. More than \$8,000, Knox county's share of automobile license fee, will be available for use on highways to be designated as "state roads" in Knox county. Seven proposed roads to receive state aid, according to Jno. L. Callaway, clerk of Knox county road commission, are: Rutledge Pike, Maryville Pike, Sevierville Pike, Kingston Pike, Broadway Pike, Clinton Pike, and Central Ave. Pike. Work to be done on "state roads" will be under supervision of Tennessee highway commission and Knox county road commission.

**Memphis, Tenn.**—Plans are being discussed for proposed Jefferson Davis Highway from Memphis to New Orleans and to Beauvoir, Miss., home of the president of the Confederacy. At Memphis proposed road would connect with Memphis-Paducah highway, now nearly completed. This road connects with trans-continental highway passing through Kentucky.

**Rogersville, Tenn.**—Frank B. Caldwell, of Bristol, representing Provident Trust Co., of Cincinnati, was successful bidder here Feb. 12 for \$250,000 road bond issue recently authorized for Hawkins county. Mr. Caldwell bid for his company at par and a premium of \$2,700.

**Corpus Christi, Tex.**—Mayor Miller has recommended that city issue bond in sum of \$150,000 for completing bluff



improvements and carrying out paving program. Election will probably be held shortly.

**Merced, Tex.**—Commissioners' court of Hidalgo county will be asked by a number of citizens to order an election in this county to authorize issuance of \$300,000 in bonds for good roads purposes.

**Sevierville, Tex.**—A proposition to bond corporation of Sevierville for \$10,000, proceeds of which will be used for paving principal streets of town, will be voted on at an election to be held within ten days.

**Temple, Tex.**—City council has authorized additional street paving in residence portion of city to extent of nearly one mile at an estimated cost of about \$25,000. Messrs. Levy & Levy of Dallas will be contractors and asphaltic concrete will be material used, work to start as soon as weather conditions permit.

**Terrell, Tex.**—City commission of Terrell has passed an ordinance to pave Nash Ave. extending from Virginia St. to Rockwall Ave. As soon as necessary preliminaries can be complied with bids will be asked for and a contract awarded.

**Salt Lake City, Utah.**—Agreement has been reached by city commission to make an additional appropriation of \$2,000 toward scenic boulevard work in vicinity of state capitol. This will make total appropriation by city to this improvement of \$5,000.

**Norfolk, Va.**—Common council in special session Feb. 14 voted unanimously in favor of petition of Virginia Railway & Power Co. to lay Durax, or small granite cubes between 2 feet on either side of their tracks on Granby St. from Queen to 18th Sts.

**Portsmouth, Va.**—Resurfacing of stone boulevards of Norfolk county is being discussed.

**Charleston, W. Va.**—Three districts in Preston county will spend \$564,000 in construction of improved roads to connect on west with famous Northwestern turnpike and on east with Maryland improved highway system. This will join thousands of miles of best highway in the world, according to reports at state department of agriculture.

**Parkersburg, W. Va.**—Plans and specifications for paving of additional streets during spring and summer were submitted to council, which passed upon them. Ordinances which authorize the work to be done were introduced and after laying over for one week will come up at next session for passage. Streets named for paving yesterday are: Park Ave., 19th to 23d Sts., brick, \$7,427.05; 24th St., from Dudley Ave. to Avery St., concrete, \$4,936.42; Oak St., from 23d to 25th Sts., concrete, \$3,166.25. Providing for partial pavement of five streets, ordinances introduced at former meeting of council were passed as follows: Ann St. from 3d to 8th Sts., brick, \$16,555.10; Lynn St. from 14th to 19th Sts., brick, \$11,498; Mary St. from East to Stephenson Sts., brick, \$3,191.30; Oak St. from 19th to 21st Sts., concrete, \$3,065.05; Latrobe St. from 19th to 21st Sts., concrete, \$2,872.75.

**Wheeling, W. Va.**—Council has taken under consideration proposition to widen Tomlinson Ave.

**Spokane, Wash.**—Three miles of Apple way, from city limits to Dishman, will be paved this year, and about three or four miles more will probably be oiled as an experiment, if plans practically decided upon Feb. 9 by the county commissioners are carried out.

**White Salmon, Wash.**—At meeting of road committee of White Salmon Commercial Club held recently, resolutions were passed favoring construction of Reckers Point Rd., connecting White Salmon and Underwood. Work will commence shortly.

**Milwaukee, Wis.**—Contracts for construction of asphalt pavements on 12 streets will be awarded by F. G. Simmons, commissioner of public works, on bids which he received from contracting firms Feb. 15. Pavements will cost \$65,000. Lowest bids are as follows: Bradford Ave., from Prospect Ave. to Downer Ave., J. P. Coughlin Co., \$4,319.77; Prospect Ave., from Bradford Ave. to Park Place, \$9,569.32; 26th Ave., from Lincoln Ave. to Hayes Ave., White Construction Co., \$4,976.88; Arthur Ave., from Layton Blvd. to 26th Ave., White Construction Co., \$6,996.93; Hayes Ave., from Forest Home Ave. to 26th Ave., White Construction Co., \$6,649.62; Cleveland Ave., from American Ave. to 11th Ave., White Construction Co., \$2,683.26; Eighth St., from Atkinson Ave. to Graham St., Badger Construction Co., \$3,015.05; 29th Ave., from Greenfield Ave. to Lapham St., White Construction Co.,

\$7,210.29; American Ave., from Cleveland Ave. to the Northwestern road, White Construction Co., \$5,584.60; Seventh Ave., from Cleveland Ave. to Northwestern road, White Construction Co., \$3,659.03; Fifth Ave., from Cleveland Ave. to Northwestern road, White Construction Co., \$3,639.79; 46th St., from Meinecke Ave. to Clark St., Badger Construction Co., \$6,540.

#### CONTRACTS AWARDED.

**Los Angeles, Cal.**—To B. Crites curbs, sidewalks and gutters on Wadsworth St. at following bid:  $\frac{1}{2}$  ct. per sq. ft. for grading to finished surface;  $\frac{1}{2}$  cts. per sq. ft. for cultivating, tamping and oiling; 29 cts. per lin. ft. for cement curb; 10 cts. per sq. ft. for cement sidewalk;  $13\frac{1}{2}$  cts. per sq. ft. for concrete gutter.

**Los Angeles, Cal.**—To Fairchild-Gilmore-Wilton Co., for bitulithic pavement, cement curb, cement sidewalk, vitrified brick gutters, granite block gutter and vitrified pipe storm drain at following bid: 17 5-10 cts. per sq. ft. for bitulithic paving; 2 cts. per sq. ft. for grading to sub-grade; 30 cts. per lin. ft. for cement curb; 10 cts. per sq. ft. for cement sidewalk; 31 cts. per sq. ft. for vitrified brick gutter; 40 cts. per sq. ft. for granite block gutter; \$343 for storm drain and appurtenances, complete.

**Los Angeles, Cal.**—For improvement of Boylston and Sapphire Sts. by construction of cement curb sidewalk and vitrified brick gutters to M. Perez at following bid: 29 9-10 cts. per lin. ft. for cement curb; 10 cts. per sq. ft. for cement sidewalk; 30 cts. per sq. ft. for vitrified brick gutter.

**Los Angeles, Cal.**—For improvement of Central Ave. by construction of asphalt paving, repaving, cement curb and sidewalk, granite block gutter and storm sewer and appurtenances to Bryant & Austin, Inc., at following bid: 2 cts. per sq. ft. for grading to sub-grade; 12 9-10 cts. per sq. ft. for asphalt repaving in Jackson St., including grading; 55 cts. per lin. ft. for cement curb, Class A, including angle iron; 10 $\frac{1}{2}$  cts. per sq. ft. for cement sidewalk; 40 cts. per sq. ft. for granite block gutter; \$1,200 for storm drain and appurtenances, complete; 32 cts. per lin. ft. for cement curb, Class A, without angle iron; 55 cts. per lin. ft. for cement curb, Class C, including angle iron.

**Galva, Ill.**—For 10,000 yds. brick pavement with asphalt filler and 5,600 ft. curbing and guttering to A. D. Thompson Co., Peoria, at \$29,168. George E. Palmer 111 West Monroe St., Chicago, is Pres. Bd. of Engrs.

**Columbus, Ind.**—The county commissioners have let three new road contracts. Leroy Jordan will build the Jordan Rd. in Clifty township for \$6,945; Willis Russell will construct the Hacker Rd. in Sandcreek township for \$5,399, and Geo. T. Nugent will build the Ervin Rd. in Rockcreek township for \$7,635. The Jordan Rd. will be of crushed stone with a gravel binder, and the other two will be of crushed stone.

**Goshen, Ind.**—The W. W. Hatch & Sons Co., of this city, has received contract for building five miles of gravel highway, a part of the Elkhart-Bristol road, for \$30,890.

**La Porte, Ind.**—To Western Construction Co., Mishawaka, Ind., for 38,000 sq. yds. of asphaltic pavement on Michigan and Indiana Aves.

**Rushville, Ind.**—For 2 roads in Orange township to Wilk & Co., Rushville, at \$9,895 and \$10,245, respectively. A. Cameron, Milroy, is Engr.

**Shelbyville, Ind.**—Contract for building of road on line between Shelby and Hancock counties has been awarded to Bentley & Hill, of Greenfield, at joint meeting of commissioners of two counties. The bid of the contractors was \$8,988.50. The road is more than three miles long.

**Vernon, Ind.**—For road in Columbia township to McCammon & Co., Seymour, at \$7,390.

**Lexington, Ky.**—Contract for electric street sweeper has been awarded the Elgin Sweeper Co. of Elgin, Ill., at price of \$4,000.

**Baltimore, Md.**—Four paving contracts for sheet asphalt aggregating nearly \$300,000 for streets in Southwest and Northwest Baltimore were awarded Feb. 16 by board of awards on recommendations of paving commission. Bids were opened several weeks ago and brought out lively competition among contractors. American Paving Co. received three of the contracts let to-day, while Baltimore Asphalt Block & Tile Co. got the other. Cost of the different con-

tracts are as follows: American Paving Co., Contract No. 126, \$70,883; contract No. 127, \$64,121, and contract No. 129, \$104,883. Baltimore Asphalt Block & Tile Co., contract No. 128, \$57,119.

**Phoenix, Mich.**—By Kewaneeaw county road commissioners for  $3\frac{1}{2}$  miles macadam road from Phoenix to Eagle Harbor to Smith, Byers & Sparks, Houghton, Mich.

**St. Cloud, Minn.**—To Minneapolis Bridge Co., Minneapolis, Minn., for creosote block pavement, at \$5,825. G. G. Magnuson is city clerk.

**Lavalette, N. J.**—J. Walter Butcher, of Asbury Park, N. J., has just been awarded contract for building 7 streets in Lavalette, on bay just below Mantaloking, contract price being \$22,875. Mr. Butcher won contract in competition with five bidders. He expects to begin work at once and has a year in which to complete contract. Streets to be improved are Magee, Brooklyn, Washington, Camden, Guyer, Band and White. Contract includes curbing and bulkheading at ocean terminus.

**Nutley, N. J.**—Town Commissioners Feb. 15 voted to rescind resolution passed Jan. 17, rejecting all bids for concrete work in town during 1916 and awarded the contract to Samuel Clardi.

**Cumberland Gap, Tenn.**—For three roads to Colley & Sutherland, New Tazewell, Tenn.; Alex. E. Smith, Speedwell, Tenn., and Bumgardner & Sampson, Ben Hur, Va. J. H. S. Morrison is Road Commissioner.

**Denison, Tex.**—For 1-course, 7 in. 1-2-4 concrete pavement, 57,000 yds., extra excavation, 3,700 yds., to M. L. Flynn Paving Co., Sioux City, Ia., at \$1,27 $\frac{1}{2}$ ; total, \$81,806.52. Other bidders were: Western Const. Co., Sioux City, at \$1.31; Dearborn Const. Co., Waterloo, Ia., at \$1.32; John A. Beebe, Omaha, Neb., at \$1.34.

#### SEWERAGE

**Pocahontas, Ark.**—City contemplates expenditure of \$30,000 for sewers and \$40,000 for water works system. E. D. Dalton is secretary.

**Los Angeles, Cal.**—Ordinances have been adopted for construction of various sewers.

**Los Angeles, Cal.**—Council has ordered construction of sanitary sewer in Florence Ave. district.

**Los Angeles, Cal.**—Ordinance has been approved for construction of sewer in Gower St.

**Sacramento, Cal.**—Council has ordered construction of sewers in several streets.

**Chino, Cal.**—Mar. 15 city will vote at special election on proposition of issuing \$128,000 worth of municipal bonds with which to construct sewer system, buy and establish sewer farm and pave number of principal streets. There is strong sentiment in favor of the enterprise.

**Eustis, Fla.**—Contract will be let in March for \$20,000 sanitary sewers and \$40,000 storm sewers and paving. Proposed that paving will be sand asphalt on clay base. Charles L. Armsby is city clerk.

**Tifton, Ga.**—See "Water Supply."

**Brazil, Ind.**—Petition was presented Feb. 15 to council for new sanitary sewer in north part of city.

**Muncie, Ind.**—Following improvement resolutions were approved Feb. 15 by special committee of city council in regular session: Construction of improved alley from Walnut to Jefferson St. between Seventh and Eighth Sts.; construction of Penn St. sewer No. 2; construction of sewer in Elliott St.

**Owensboro, Ky.**—The Solomon-Norcross Co. of Atlanta, Ga., are preparing plans for sewerage disposal plant.

**De Ridder, La.**—Sewer and water bonds for \$41,000 will be sold March 1 by sewerage commission. J. E. McMahon is chairman.

**Towson, Md.**—City has engaged Ezra B. Whitman, Baltimore, to prepare plan for sewerage system.

**Fall River, Mass.**—Plans are being discussed for construction of sewer starting at the Sand-Bar and emptying at tidewater at Mount Hope Bay at estimated cost of \$500,000.

**Bay City, Mich.**—Petition for 10-inch socket tile sewer through alley of block 42, Daglish division of Portsmouth from north gutter line of Fremont Ave. to 29th St. main sewer has been referred to board of public works.

**Grosse Point, Mich.**—That village soon will have new \$285,000 sewer system was announced Feb. 14 by A. Cadieux, village president. Bonds will be issued soon and construction started next sum-

mer. Tank system of sewage disposal will be installed.

**Laurel, Miss.**—City commissioners announce that on Mar. 13 they will receive bids for 5 per cent 20-year bonds in sum of \$25,000, and money derived from sale of bonds will be used as follows: \$7,000 for needed improvements in city school buildings, \$5,000 for extension of the sewerage system and \$13,000 for street improvement. A large number of additional streets are to be paved during the summer.

**St. Louis, Mo.**—Board of public service will hold special meeting March 7 to discuss following improvements: Construction of sewers in Russell place joint sewer district, as established by ordinance No. 28114; Sewers 33 ins. or less in mean diameter to be built of vitrified clay pipe; sewers greater than 33 ins. in mean diameter to be built of either, first, brick laid in Portland cement mortar, or second, 2-ring segment block made of vitrified tile. Estimated cost of work \$32,000. Construction of sewers in Cora Ave. sewer district No. 3, as established by ordinance No. 28443. Sewers to be built of vitrified clay pipe; estimated cost of work, \$970. Construction of sewers in Manchester road sewer district No. 5, as established by ordinance No. 28495. Sewers to be built of vitrified clay pipe; estimated cost of work, \$7,000.

**Binghamton, N. Y.**—Secretary has been directed to advertise for proposals for construction of sewer on Stone St. to be opened Feb. 23.

**Binghamton, N. Y.**—Common council Feb. 17 voted issue \$150,000 worth of bonds for intercepting sewer system.

**Fredonia, N. Y.**—Fredonia village trustees have decided not to submit sewage disposal plant proposition to voters at village election on Mar. 13. There are two systems under consideration.

**Yonkers, N. Y.**—Ordinances were passed Feb. 15 directing city engineer to prepare plans and specifications for construction of sewers in Morningside Rd. and directing construction of house and storm water sewers in a number of streets in 9th Ward.

**New Castle, Pa.**—City council is considering sewerage disposal plant.

**Woonsocket, R. I.**—Mayor has approved ordinance for sewers and main drains in Winter St.

**Cooper, Tex.**—See "Water Supply."

**Itasca, Tex.**—In response to petition signed by three-fourths of taxpaying voters of city city council voted unanimously to order election for Mar. 11 to determine whether or not city would issue \$15,000 in bonds for purpose of building sewer system.

**Mincola, Tex.**—Sewer pipe is being distributed over city for purpose of putting in sewer system. Contract has been let for this work and also for paving main street.

**Centralia, Wash.**—Reported that Council will order creation of improvement district for construction of sewerage system.

**Milwaukee, Wis.**—Reported that Council is in favor of bond issue of \$1,560,000 for activated sludge sewage disposal plant on Jones Island.

#### CONTRACTS AWARDED.

**Rogers, Ark.**—For constructing sewage disposal plant to L. H. Adamson, Rogers, at \$11,115. Next 3 lowest bidders: D. E. Koch, Joplin, Mo., \$11,448; Cardwell Construction Co., Texarkana, Ark., \$11,512, and O'Neal Construction Co., Leavenworth, Kan., \$13,900.

**Los Angeles, Cal.**—For construction of sewer in 4th St. to Andrew Jayich at \$1,879.

**Los Angeles, Cal.**—To Mike Chatuk at \$1,080 for construction of sewer in 35th Place.

**Los Angeles, Cal.**—To J. C. Wukojevich at \$19,400 for construction of sewer in Vine St.

**Los Angeles, Cal.**—To J. C. Wukojevich at \$3,400 for construction of sewer in Sierra St.

**Dunedin, Fla.**—To Davis & Webb, Tampa, Fla., for shale pipe at following bid: 750 ft. 6-in. pipe at 38 cts.; 600 ft. 6-in. pipe at 40 cts.; 630 ft. 10-in. pipe at 45 cts.; 15 ft. 10-in. pipe at 55 cts.; 580 ft. 12-in. pipe at 60 cts.; 840 ft. 12-in. pipe at 75 cts.; 10 ft. 12-in. pipe at 80 cts.; Imhoff tank, \$1,400; total bid, \$4,206.50. Other bidders were as follows: Seminole Const. Co., Sanford, Fla., at 29 cts., 39 cts., 46 cts., 58 cts., 56 cts., 71 cts., 80 cts., respectively; total, \$2,597.45 (no bid on tank). Fla. Mail Vault Co., Lakeland, Fla., at 35 cts., 50 cts., 45 cts., 75 cts., 55 cts., 90 cts., \$1.35, respectively;

tank, \$2,500; total bid \$5,335.75. Edwards Const. Co., Tampa, Fla., part of paving construction at 70 cts.; total, \$840; extra for rock excavation \$5 per cu. yd.; 8 manholes, \$55; flush tanks, \$60.

**Jacksonville, Fla.**—To Franks & Foley of this city for about 2,500 ft. of 6 to 18-in. vitrified shale pipe.

**Dubuque, Ia.**—To G. L. Kormann for an 8-in. sanitary sewer in Burden Ave., at \$0.69 per lin. ft. for sewer and \$25 per manhole. Sewer will be 2,580 ft. long and there will be 17 manholes.

**Lexington, Ky.**—For 3,660 feet 12-in. and 10-in. sewer pipe, at \$9,205.10, to P. O'Neill & Bro. Extra for rock excavation, \$2.98 per cu. yd., earth at 54 cts. per sq. yd., manholes, \$35, flush tanks, \$60.

**Boston, Mass.**—For constructing sewers in Frankfort St. and Neptune Rd., to Jas. J. Coughlan Co., 43 Tremont St., at \$32,886.

**Ridgely, Pa.**—To Di Napoli & Toriello Const. Co., Hackensack, N. J., for vitrified tile sewer pipe at following bid: 8,335 ft. 8-in. pipe at 75 cts.; 6,391 ft. 10-in. pipe at 81 cts.; 2,865 ft. 12-in. pipe at 90 cts.; 465 ft. 15-in. pipe at \$1.08; 680 ft. 8-in. pipe at \$3.23; 480 ft. 10-in. pipe at \$3.44; total bid, \$27,765.54. Other bidders were: Fred E. Gross & Son, Yonkers, N. Y., at 67 cts., 74 cts., 90 cts., \$1.40, \$2.85 and \$3, respectively; total, \$27,794.19. Clinton Contracting Co., at 80 cts., 87 cts., \$1, \$1.35, \$3.14 and \$3.21, respectively; total bid, \$30,577.27. Martin & Young, at \$1, \$1.10, \$1.25, \$1.35, \$2.75 and \$2.85, respectively; total bid, \$38,758.45. Rudolph Schweizer, Jr., is Village Engineer.

**Rochester, N. Y.**—At meeting Feb. 15 board accepted bid of J. de Bartolo for laying of a 12-in. sewer pipe in Cadwell and Fitch Sts. at cost of \$1,128. J. F. Fiscoe was awarded contract for similar work in Craton St., between Winton St. and Teall Ave. Bid was \$478.75.

**Cuyahoga Falls, O.**—Vitrified sewer pipe aggregating \$19,000 for East Broad, West Broad and Stow St. lateral sewer systems awarded to C. Lou Wright, Mt. Vernon, O.

**Youngstown, O.**—To P. & P. J. Grady, 503 N. Walnut St., Youngstown, O., at \$22,028, for constructing Dennick District sewer with American segmental block.

**Houston, Tex.**—To T. A. Garvin, at \$5,000, for storm sewer in Noble St.

**Houston, Tex.**—To Lucius Taylor, at \$5,972, for storm sewer in McKinney St., and at \$2,198 for graveling Beauchamp St.

**Milwaukee, Wis.**—By sewerage commission, for intercepting sewer for Detroit St., foot of Erie St., to Jennings & Ross, Toronto, Ont., at \$206,529. For construction of the two syphons under river to transport sewage to disposal plant on Jones Island to Western Foundation Co., St. Paul, Minn., at \$192,800.

**Milwaukee, Wis.**—Constructing one regulating and by pass chamber, two concrete drop shafts approximately 14 ft. deep, outside diameter 70 ft. deep each, etc., to Western Foundation Co., St. Paul, at \$192,800. Other bidders were as follows: Chas. A. Haskell, Boston, Mass., \$254,000; O'Brien & Jackson, Milwaukee, Wis., \$267,740, and Thomas-Harmon Co., St. Louis, Mo., \$299,202. For building approximately 3,560 ft. combined sewer, consisting of 60-in. c. l. pipe, and 4 ft. 1 in. x 5 ft. 8 in. reinforced concrete conduit, 1,630 lin. ft. 12 to 24-in. terra cotta pipe, sewer manholes, etc., to Jennings & Ross, Ltd., Toronto, Ont., at \$206,529. Other bidders were: James Kennedy, Fargo, N. D., \$213,415; F. H. Nakielski, Milwaukee, \$221,193; Herman Hohensee, Milwaukee, \$256,096.

#### WATER SUPPLY

**Pocahontas, Ark.**—See "Sewerage."

**Texarkana, Ark.**—Recommended that Council make a proposition to Texarkana Water Corporation for purpose of settling all matters in controversy. First of these propositions is that Water Corporation install, in accordance with requirements of Arkansas Actural Bureau in order to secure better insurance rates, one additional pump at Arkansas pumping station, with capacity of 2,500,000 gallons of water each 24 hour period; to lay a line of 12-in. water mains from the pumping station to and along Fifth St. to State Line Ave., and to tie on feeder mains at all lines intersecting, an approximate distance of 5,200 ft.; also a 10-in. main in Elm St. from Fifth to Broad St., a distance of 1,100 ft.; an 8-in. main in Elm St. from Broad to Front Sts., 400 ft.; an 8-in. main in Ash St., from Eighth to Broad St., 2,200 ft.; an

8-in. main on 16th St. from State Line Ave. to County Ave., all of which improvements are to cost approximately \$30,000.

**Redding, Cal.**—Plans and specifications for construction of Anderson-Cottonwood irrigation system are ready and bids will be advertised for at once. H. H. Henderson, engineer in chief, and the board of directors have been in session in Redding for several days working out minor details.

**San Rafael Heights, Cal.**—City will lay water main on Hillside Terrace.

**Tifton, Ga.**—At meeting Feb. 8 of City Council resolution was passed to call an election to authorize an issue of \$76,000 in bonds for municipal improvements. These are divided into \$30,000 for a high school building, \$25,000 for water works, including mains and sewerage, and \$6,000 for fire fighting apparatus, and \$15,000 for street paving.

**McCammon, Ida.**—Bids for construction of \$20,000 water works system will probably be opened about March 1. Plans are being prepared by Engineer Cotton, Idaho Falls.

**Wauconda, Ill.**—Village water system, including a pumping station, standpipe and three miles of main is to be put in at once at an estimated cost of between \$15,000 and \$18,000. At the regular election in April a bond issue of \$4,500 will be put up to people of Wauconda. This will be for purchase and installation of engine and water reservoir. Three miles of water mains and the service pipes will be put in by special assessment.

**Newport, Ky.**—In department of public property \$46,736 will be expended, \$4,000 for new boilers and \$1,500 for extension of water system in Woodlawn addition.

**Winchester, Ky.**—Municipal waterworks plant has been urged by committee on permanent organization.

**Springfield, Mass.**—An article will appear in March town meeting warrant to see if town will authorize water commissioners to extend water main on Springfield Rd. to East mountain section. This will probably cost \$6,000 or \$7,000.

**Bay City, Mich.**—Council has been petitioned to order water pipes to be laid on Kiesel St. from Ionia Ave. to Calumet. Property owners on that street will agree to connect and use water as soon as pipes are laid. Referred to waterworks committee.

**Saginaw, Mich.**—Following bids were received Feb. 8 for cast-iron water pipe: Massillon Iron & Steel Co., Massillon, O., at \$30.36 per ton, specials 3 cts. per lb.; U. S. Cast Iron Pipe & Foundry Co., Philadelphia, Pa., at \$31.30 per ton, specials 3 cts. per lb. Season's needs estimated at 800 tons. R. F. Johnson, Commissioner.

**Duluth, Minn.**—Ordinance was approved by Council Feb. 9 to appropriate \$3,400 from public utility fund for purchase of lead pipe and solder for Water and Light Department.

**Duluth, Minn.**—Ordinance has been approved appropriating \$30,000 from public utility fund for purchase of cast iron pipe for Water and Light Department.

**Cape May Point, N. J.**—Borough has voted \$15,000 bonds for extension of water works system.

**Dover, N. J.**—Council contemplates extension of the water supply.

**Newark, N. J.**—An issue of \$6,000 water bonds was sold by West Caldwell Borough Council Feb. 11, highest bidder being Montclair Savings Bank. Premium of \$2.77 was allowed, subject to legal opinion that bonds are valid. The bonds will be payable in 5 years and will bear 5 per cent. interest.

**New Brunswick, N. J.**—By resolution of Mayor Farrington it was decided at meeting of city commission Feb. 15 to reject all bids received a few weeks ago for two new pumps at Weston's Mill Station, and to return checks of bidders. Action was unanimous. Mayor read a statement from advisory water commission to effect that after going over field generally it had been decided to recommend that bids be rejected and that new bids be advertised for of greater power and efficiency than contemplated in original advertisement. In call for new bids it is announced that bidding will be limited to contractors who have put up similar equipment within reasonable distance of New Brunswick, in order that their work may be inspected before contract is awarded. Attention of commission was called by Mayor Farrington to requests received by him for extensions of water mains in Highland Park, which if granted would entail an



expenditure of \$2,192. Mayor said in view of fact that contract between this city and Park expires in 1918, he felt city should go slow about installing new pipe there.

**Lewiston, N. Y.**—Village board Feb 15 received bids from about 50 firms for construction of proposed \$39,000 waterworks system in village. There were no lump bids and board will carefully tabulate figures submitted. It is believed that work can be done within estimate. Decision will be given shortly. Falls bidders were Shepard & Callahan, McKinney & McGuire and Dominick Spangone.

**North Tonawanda, N. Y.**—Expenditure of \$40,000 for improvements to city water works is being considered.

**Perry, N. Y.**—Board of trustees for village have asked Engineer C. C. Hopkins, of Rochester, to prepare preliminary plans for modern slow sand filtration plant to purify water used by village water works. Estimated cost, \$30,000.

**Rochester, N. Y.**—On request of Chas. A. Windholz, superintendent of bureau of water, board called for bids for furnishing pig lead and lead pipe.

**Watertown, N. Y.**—It is now assured that as result of meetings of board of water works and Common Council to be held Feb. 15, Hazen, Whipple & Fuller, consulting engineers for board of water works, will be empowered to draw up plans and specifications for an addition to present pumping station to cost in neighborhood of \$50,000. It has been found necessary to immediately increase capacity of present plant from 4,500,000 gallons a day to 6,000,000, amount used daily in city at present time.

**Wilmington, N. C.**—The question of purchase of private water and sewerage system at Carolina Heights, which belongs to estate of Miss Mary L. Bridgers and heirs is being discussed. Council has taken position that it would be best to put in new system which would be more adequate for needs of this suburb. Special committee appointed to go into matter will make report to city council at next meeting.

**Columbus, O.**—See "Streets & Roads."

**Defiance, O.**—City will have new \$60,000 water filtration plant. Announcement was made Feb. 15 by Judge Julian H. Tyler, president of Defiance Waterworks Co. Work on new plant will be started as soon as weather permits. Defiance waterworks plant recently was sold at auction by federal court. Property was bought in by bondholders for \$55,000 and present company was organized, with Judge Tyler at its head, to add filtration plant to the equipment.

**Newport, O.**—City plans appropriation of \$4,000 for new boilers at pump house.

**Baker, Ore.**—That the bid of Henry Teal, of Portland, for the \$75,000 issue of city water bonds, offering a premium of \$3,982.50, or over 5 per cent., would undoubtedly secure contract, was opinion of the City Commissioners meeting in regular session Feb. 8, when bids for bond issue were opened. Final decision will be reached at special meeting. The only irregularity in the bid, it was pointed out, was stipulation that interest on the bonds should be paid in gold coin. A query on this point will be wired to Portland. Other premiums offered submitted were as follows: Carstens & Earles, Seattle, \$3,763; James N. Wright & Co., Denver, \$3,525; Ferris & Hardgrove, Spokane, \$2,912; International Trust Co., Denver, \$3,662.50; Western Bond & Mortgage Co., Portland, \$3,457; First National Bank, Baker, \$2,812.50; Lumbermen's Trust Co., Portland, \$3,465; Morris Bros., Portland, \$3,652.50. The bid of Bulger, Mosser & Williams of Chicago, offering a premium of \$1,500, was unaccompanied by a certified check.

**St. Johns, Ore.**—Council Feb. 11 offered St. Johns Water Works & Lighting Co. \$108,000 for its private water system in St. Johns district. Attorney R. W. Montague, representing company, said that he had no authority to accept the offer, but would present it immediately to President Powers of company and gave council impression that it would be accepted.

**Pittsburgh, Pa.**—Council has authorized department of supplies to purchase \$100,000 worth of water meters and meter fixtures.

**Lake Norden, S. D.**—City is discussing plans for construction of electric light plant and water works.

**Alta Loma, Tex.**—Bids for drilling and equipping of three new wells at Alta Loma, wells to be electrically driven

and estimated to produce 1,000,000 gallons of water per well per day, are as follows: J. G. Brown & Co., Layne & Bowler and A. M. Lockett & Co. Brown Co.'s bid is \$19,500, with various charges for certain extras; Layne & Bowler bid \$19,600 and \$17,500, the latter an alternate bid. Lockett concern submitted bids covering just the necessary machinery and equipment for proposed three wells, one of them being in sum of \$11,781. Bids were referred to Commissioner Shay together with committee of engineers, headed by F. M. Lege, Jr., that has charge, in an advisory capacity, of water works improvement plans.

**Cooper, Tex.**—Henry E. Elrod, Dallas, Tex., consulting engineer, has been retained by city to design waterworks and sewerage system.

**Temple, Tex.**—Council in session Feb. 10 adopted recommendation of Water Commission that Smith & Whitney proposition to equip city power station with an electrical pump and all accessories be accepted.

**Niagara Falls, Ont.**—Waterworks Board met Feb. 11 in city hall. A 6-in. main was ordered to replace present one in River Rd. from Bender Ave. to Lafayette hotel. Board ordered 12 fire hydrants to be purchased from Dougherty Manufacturing Co. of Sarnia. Tenders are to be called for trenching, excavating and labor during coming year.

#### CONTRACTS AWARDED.

**Dunedin, Fla.**—To Davis & Webb, Tampa, Fla., for water works supplies at following bid: 1,000 ft. 4-in. pipe at 58 cts.; 6,500 ft. 6-in. pipe at 75 cts.; 1,600 ft. 8-in. pipe at \$1.10; 14 hydrants, 4-in., at \$25; 6-in., at \$26; 4-in. gate at \$12; 6-in. gate at \$18.50; 8-in. gate at \$23; total bid, \$8,141.50. Next lowest bidder was Seminole Const. Co., Sanford, Fla., at following bid: 4-in. pipe at 59 cts.; 6-in. pipe at 76 cts.; 8-in. pipe at \$1.05; 4-in. hydrant at \$24; 6-in. hydrant at \$25; 4-in. gate at \$11; 6-in. gate at \$16; 8-in. gate at \$21; total bid, \$8,313.50.

**Galesburg, Ill.**—To S. B. Geiger, Chicago, Ill., for constructing tubular deep well at \$19,533. W. L. Boutelle is city clerk.

**Rock Island, Ill.**—To McCraney Sand & Gravel Co. of Davenport, Ia., for settling basin at Matherville powerhouse of Rock Island Southern Ry.

**Sullivan, Ill.**—For improvements to water works, to P. K. Engineering Co., St. Louis, Mo. F. Newbould is city clerk.

**Washington, Ind.**—The R. A. Brown Co. of this city has received contract for dredging Prairie creek, a distance of more than 20 miles, the contract price being \$63,700. The estimate was \$81,220.05.

**Lake Charles, La.**—The Lake Charles Railway, Light and Waterworks Co. has let contract for construction of concrete reservoir with a capacity of 175,000 gallons of water to H. S. Sealey, of New Iberia. Reservoir was designed by F. H. Frankland. It is 48 feet wide, 70 feet long and 13 feet deep.

**Grand Rapids, Mich.**—For installing water mains to the Lynchburg Foundry Co., Lynchburg, Va., to cost approximately \$18,000.

**Zeeland, Mich.**—To Traverse City Iron Works, Traverse City, for water works for this village.

**Duluth, Minn.**—Contracts calling for expenditure of about \$50,000 were approved by City Commissioners while resolutions providing for an outlay of another \$15,000 were given first or second readings. Largest items were for 1916 supplies to be used by water and light department. United States Cast Iron Pipe & Foundry Co. will get contract for furnishing 1,000 tons of cast iron pipe to cost \$31,765. The Kelley-Howe-Thomson Co. will furnish 2,000 lbs. of solder at \$430, and the Crane-Ordway Co. will furnish wrought iron pipes on its bid of \$1,671.74. The Illinois Refining & Smelting Co. will furnish 35,000 lbs. of lead pipe on its bid of \$2,446.50.

**Roundup, Mont.**—To Security Bridge Co., Billings, Mont., for about \$16,000 for extension to water system for city.

**Roundup, Mont.**—To Security Bridge Co., Billings, for constructing extension system at a cost of \$16,000.

**Omaha, Neb.**—To Nebraska Foundry & Mfg. Co. was awarded contract to furnish city 100,000 or more pounds of castings on a bid of .0224 cts. per lb. Smith Brick Co. was awarded contract to furnish 300,000 or more bricks on bid of \$8.15 per 1,000 during 1916.

**New York, N. Y.**—For furnishing and placing copper lining in portion of city

tunnel of Catskill Aqueduct between Shafts 18 and 19, Borough of Manhattan, to Lupfer Remick, 594 Ellicott Sq., Buffalo, at \$130,050.

**Baker, Ore.**—Contract for \$75,000 issue of city water line extension bonds was formally awarded to Henry Teal of Portland Feb. 9, on his bid offering premium of \$3,982.50, by City Commissioners in special session. Clause providing that payment of interest be in gold coin was allowed to stand, Commissioners holding it as technicality which would not prove embarrassing.

**Erie, Pa.**—For 73 valves of 6, 12, 16 and 20-in. type and for valve boxes to R. D. Wood & Co. of Philadelphia, Pa., at \$1,390.

**Galveston, Tex.**—To Layne & Bowler of Houston for proposed new wells at Alta Loma at \$17,500. Work will be completed within 90 days.

**Temple, Tex.**—To Smith & Whitney, Dallas, Tex., for 4 pumps and 4 motors at \$5,886. Other bidders were as follows: A. G. Wright Co., Dallas, Tex., at \$5,690; Sherman Machine Co., Oklahoma City, at \$5,851. J. T. Martin is City Secy.

**Trinity, Tex.**—For constructing a 50,000 gallon water tower and distribution system to W. Wilder of Houston at \$15,000.

**Milwaukee, Wis.**—To Chapman Valve Mfg. Co., Indian Orchard, Mass., for gate valves for Water Dept. at following bid: Six 4-in. valves at \$7.80; 250 6-in. valves at \$12; 50 8-in. valves at \$17; 25 12-in. valves at \$33; 2 16-in. valves at \$75; total, \$4,871.80.

**Milwaukee, Wis.**—To American Cast Iron Pipe Co., Chicago, Ill., at \$50,660, for class "C" water pipe; to Nortman-Duffke Foundry Co., Milwaukee, Wis., at \$4,425, for special castings; to Chapman Valve Mfg. Co., Indian Orchard, Mass., at \$1,282.50, for tapping valves; to United Brass Mfg. Co., Cleveland, O., at \$2,075, for curb cocks.

**Milwaukee, Wis.**—Following contracts have been awarded: To American Cast Iron Pipe Co., Minneapolis, Minn., for 1,200 tons 6-in. water pipe at \$29.80 per ton, 250 tons 8-in. water pipe at \$29.80 per ton, 250 tons 12-in. water pipe at \$29.80 per ton; to Nortman-Duffke Foundry Co., Milwaukee, Wis., for 75 tons castings at \$59 per ton; to Chapman Valve Mfg. Co., Indian Orchard, Mass., for 25 2-in. tapping valves at \$10.50 each, 30 3-in. tapping valves at \$12 each, 40 4-in. tapping valves at \$14.50 each, and 4 6-in. tapping valves at \$20 each; to Chapman Valve Mfg. Co., 6 4-in. gate valves at \$7.80 each; 250 6-in. gate valves at \$12 each; 50 8-in. at \$17 each, 25 12-in. at \$33 each and 2 16-in. at \$75 each. H. P. Bohmann is Superintendent of Water Works Dept.

#### MISCELLANEOUS

**Oakdale, Cal.**—Surveys for new drainage system to be built by Oakdale Irrigation district have been completed. Irrigation Board has rejected the offer of Modesto Irrigation district by which Oakdale was asked to pay part of cost of enlarging Modesto canals to take care of storm waters, and new spillway canal will be constructed to take care of excess of water from Oakdale district.

**Sacramento, Cal.**—E. H. Rollins & Sons and the First Trust & Savings Bank of Chicago have purchased \$2,300,000 of state bonds from State Treasurer Fred W. Richardson at par and accrued interest. The bonds were remaining \$1,500,000 of state highway issue and \$800,000 of \$1,000,000 issue voted for a state building at San Francisco.

**San Diego, Cal.**—The promptness of federal government to prepare for emergency in protecting government work was demonstrated recently when authorities at Washington wired Lieutenant Acher a fund of \$35,000 to be used in protecting dyke which keeps San Diego river from finding its way into San Diego bay.

**San Francisco, Cal.**—Mayor Rolph Feb. 10 signed 550 Hetch-Hetchy bonds following an urgent request from Blyth Witter & Co., purchasers, for \$1,000,000 worth for immediate delivery to purchasers.

**Pueblo, Colo.**—Ordinance has been introduced providing for bond issue of \$30,000 for erection of municipal building which will be combined city hall and auditorium.

**Washington, D. C.**—Sealed proposals will be received at Office of the Supervising Architect, Treasury Dept., Washington, D. C., until Mar. 30, 1916, for the construction complete of the United

States post office at Huntington, Ind. Drawings and specifications may be obtained on application to custodian of the site at Huntington, or at Supervising Architect's Office, Washington. (No. 2990)

**Washington, D. C.**—The rivers and harbors appropriation bill, with \$32,000 for continuing improvement work on Potomac River in vicinity of Washington, was taken up in the rivers and harbors committee Feb. 15 for report to House. It also carries \$15,000 for improving Occoquan Aquia, Mattaponi and Pamunkey Creeks and authorizes new survey of Aquia Creek, with view to carrying present channel improvements 200 yds. further up stream. As completed so far, the bill carries no authorizations and expenditures for large new projects.

**Tifton, Ga.**—See "Water Supply."

**Wauconda, Ill.**—Plans have been completed for new township high school with complete four-year accredited course, at an estimated expenditure of about \$20,000 to be completed this summer.

**Columbus, Ind.**—At meeting of the City Council here a resolution not to buy Perry Park and making action final was adopted by vote of 6 to 1. This action settles a question which for ten days has agitated this city and makes possible gift of a seventy-acre park to the city by Will G. Irwin. Eight hundred men and 1,000 women petitioned the Council to buy Perry Park.

**Fort Wayne, Ind.**—State Treasurer George Bittler Feb. 11 urged his company's product before board of works. He is vice-president of Peerless Company, of Huntington, Ind., and it is generally accepted that the Lime City firm will be awarded contract for building garbage exterminator.

**Indianapolis, Ind.**—Board of Public Works Feb. 7 rejected bids which were received for road oil, to be used in sprinkling unimproved streets this year. City Engineer Jeup expressed belief that bids were too high and recommended that bids be received again on March 6.

**Peru, Ind.**—City clerk has been instructed to investigate and determine what is best solution for taking care of city garbage, contract for which will expire shortly.

**Clinton, Kan.**—Residents of Clinton and Kenwaka Twp., hoping to avoid flood losses of former years, are considering formation of drainage district to reduce flood damage to minimum. A meeting was held at Belvoir recently and a committee of five men was appointed to confer with officials of drainage districts already existing, to acquaint themselves with best means of perfecting organization of the new district. Members of the committee are: J. M. Cummings, chairman, Charles Cum-

tings, James Steele, Art Humphrey and C. E. Woodward. Members of the committee were in Lawrence recently to consult with officials of Wakarusa drainage district. Proposed new drainage district will start at east line of Clinton Twp. and extend to west line of Kanwaka Twp., covering southern edges of both townships.

**Georgetown, Ky.**—City will receive sealed proposals until 1 p. m., Feb. 19, for sale of \$100,000 bond issue. W. H. Gatewood is clerk.

**Owensboro, Ky.**—Council has voted to construct new city hall at probable cost of \$40,000.

**Beverly, Mass.**—Construction of bath house at probable cost of \$25,000 is contemplated.

**Boston, Mass.**—A smaller and simpler building than that planned for convenience station on Flagstaff Hill, Boston Common, will be erected. This announcement was made following conference that Mayor Curley had with park and recreation commission and members of city council recently.

**Boston, Mass.**—Extension of tunnel and subway system of Boston, and elimination of portion of elevated structure was advocated by citizens of suburbs and south end district, at state house Feb. 7. Six bills for underground work were before committee calling for a total expenditure of \$10,000,000.

**Holyoke, Mass.**—Board has approved estimate of \$15,600 for maintenance of parks for coming year, and following recommendations for improvements outside of this recommendation were made: Elmwood park bridge, \$30,000; grading and development in Elmwood park, \$5,000; the same for Jones park, \$5,000; Prospect park, lights and grading, \$5,000.

**Lynn, Mass.**—City will sell \$75,000 bond issue for school purposes.

**Springfield, Mass.**—The committee on revising by-laws of town has been giving much attention to this work and an effort is now being made to have Legislature pass special bill that is to be introduced into Senate and which relates to establishment of office of town auditor.

**West Medway, Mass.**—Special town meeting will be held Feb. 11 to vote on bond issue of \$40,000 for land, building and equipment of proposed High School building. Voters will be asked to authorize water commissioners to make contract with Bellingham to supply water system of that town for period of years to be decided by commissioners.

**Hibbing, Minn.**—Village attorney has been instructed by Council to enter into an agreement with Oliver Iron Mining Co. for lease of two lots, on which an incinerator will be built by village.

**Laurel, Miss.**—See "Sewerage."

**Asbury Park, N. J.**—Plans are being discussed for construction of concrete spillway as an outlet to Deal lake and connecting of Ocean Ave. in Asbury Park and Deal across it, and the building of a concrete abutment on the lake side of road. Cost is estimated at about \$12,000, of which it was said yesterday Asbury Park is ready to appropriate \$2,000 and Ocean township \$700. County will be asked to aid in project.

**Albany, N. Y.**—County Treasurer Isaac La Grange has sold an issue of \$150,000 4 1/2 per cent non-taxable, registered county bonds for court house construction, to Mechanics and Farmers' bank of this city. The bonds were purchased at 101.04, a premium of \$1,560 being paid. They expire in two years, on March 1. There were 20 bidders.

**Albany, N. Y.**—General W. W. Wother- spoon, superintendent of public works, opened bids Feb. 16 for three contracts along Erie canal aggregating over \$800,000. One was for construction of a highway bridge over Mohawk river at Little Falls, Thomas Leonard of Saratoga Springs being lowest at \$56,615; another for construction of a stretch of canal from west boundary of Wayne county to King's Bend, State Highway Construction Co. of Beacon being lowest at \$488,103, and the third for completion of the lock, dam, etc., at May's Point, Scott Brothers of Rome being lowest at \$277,248.

**Binghamton, N. Y.**—Binghamton Railway Company has asked for bids for the manufacture and delivery to company of 16 new cars. No definite action has been reached by local corporation as to the exact style of car to be ordered. Matter will be settled shortly, or as soon as bids of various car manufacturing concerns are received and selections made.

**Binghamton, N. Y.**—Board of estimate has approved ordinance passed by common council authorizing construction of fireproof building for police and fire signal system at cost not to exceed \$6,000.

**Buffalo, N. Y.**—Committee of Supervisors, consisting of Chairman McElvein, Ladd, Flore, Kronenberg and Patton, was told by Councilmen Feb. 12 that the city will sell its interest in city and county hall and site for \$700,000. If offer is accepted Councilmen purpose erecting new municipal office building, probably on Nardin site, at an estimated cost of \$800,000.

**Herkimer, N. Y.**—First National Bank Feb. 14 purchased for 4.40 per cent interest a block of \$8,022.91 of Herkimer Village bonds offered at public sale. Other bidders were George C. Steele, cashier of the Herkimer National Bank, and a representative of H. A. Kahler & Co., of New York.

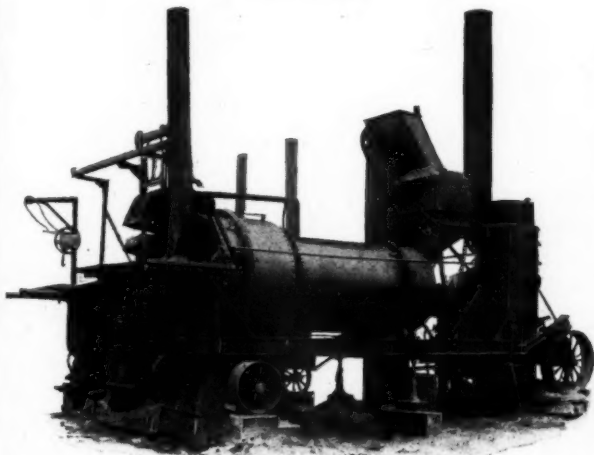
## TOO LATE FOR CLASSIFICATION

### BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS.</b>				
N. Y.	Long Island C.	11 a.m., Mar.	1.. Recurring and repaving with asphaltic concrete (9,800 ft. concrete curb and 17,400 sq. yds. pavement); 2,000 sq. ft. cement sidewalk.	M. E. Connolly, Boro. Pres.
O.	Cincinnati	Noon, Mar.	3.. Setting granite curb and paving with asphalt and wood block	Chief Engineer, Dept. Public Service.
Ind.	Indianapolis	10 a.m., Mar.	6.. Furnishing 100,000 gallons road oil.	Board of Park Commissioners.
Minn.	St. Paul	10.30 a.m., Mar.	6.. Grading several streets.	Aug. Hohenstein, Pur. Agent.
Ind.	Rockville	11 a.m., Mar.	7.. Grading, draining and paving road.	Chas. Davis, County Auditor.
<b>SEWERAGE</b>				
Mass.	Boston	Noon, Mar.	1.. Manhole and catchbasin and other iron castings.	D. F. Doherty, Supt. of Sup.
<b>WATER SUPPLY</b>				
Mass.	Boston	Noon, Feb. 28.	Furnishing 925 tons miscellaneous iron castings, 2,350 tons 4 to 30-in. c. i. pipe and 150 tons specials.	D. F. Doherty, Supt. of Sup.
Ia.	Centerville	2 p.m., Mar.	3.. Furnishing 3,200 ft. 12 to 24-in. boiler pipe or c. i. pipe.	A. H. Withington, Co. Engr.
<b>FIRE EQUIPMENT</b>				
Pa.	Wilkes-Barre	Mar.	7.. Furnishing fire hose.	Fred Gates, City Clerk.
Wis.	Prescott	8 p.m., Mar.	7.. 500 feet of hose.	City Clerk.
Pa.	Franklin	4 p.m., Mar.	13.. One motor-driven combination hose and chemical car.	J. G. Crawford, City Clerk.
<b>BRIDGES</b>				
Ill.	Springfield	2 p.m., Feb. 26.	Constructing several reinforced concrete bridges.	State Highway Commission.
<b>MISCELLANEOUS</b>				
N. Y.	New York	3 p.m., Mar.	2.. Furnishing one 3 1/2-ton motor-driven truck	Board of Park Commissioners.



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## STREETS AND ROADS

**Birmingham, Ala.**—City commissioners have instructed city engineer to draw ordinances for paving of the following streets with permanent pavement: Tenth Ave., south, between 28th and 29th Sts.; Ave. G (Seventh Ave., south) from 18th to 27th Sts.; 19th St. from 11th to 12th Ave., south; also for sidewalk paving on 80th St. from end of present sidewalk, south to Rugby Ave., and north along Rugby Ave. to 81st St., to connect with Lakewood addition sidewalks.

**Los Angeles, Cal.**—Orange county contemplates bond issue of \$150,000 to \$200,-

000 for repairs to roads and bridges damaged by recent floods.

**Oakland, Cal.**—City trustees by unanimous vote have ordered city attorney to prepare resolution of intention to pave F St., and instructed city engineer to prepare specifications for pavement. Trustees decided on an 8-ft. pavement with a 2½-in. concrete foundation and top dressing of Topeka, 1½-in. thick. Resolution will call for paving of F St. only from eastern limits of city to Bridge St.

**Susanville, Cal.**—Citizens have voted favorably on bond issue of \$18,000 for improvement of streets and installation of fire alarm system.

**Lakeside, Ind.**—Board of works has decided to grant petition for paving on St. Joe Boulevard.

**South Bend, Ind.**—Estimates for paving of three main thoroughfares of city as contemplated by the board of public works were filed Feb. 15 by city engineer. According to his figures maximum amounts to be expended for streets are as follows: Michigan St. from north line of Lasalle Ave. to south line of South St., \$83,748; Indiana Ave. from Leer St. to Kemble Ave., \$69,550; Eddy St. from Jefferson Blvd. to Sample St. bridge and Mishawaka Ave. from Eddy St. to the center of 19th St., \$155,142. Hearings on these street improvements will be given as follows: Michigan St., Feb. 29; Eddy St., Mar. 14; Indiana Ave., Mar. 7. Following hearings, adjustments and confirmations bids will be received about April 1. Board is receiving propositions from various concerns offering brick, asphalt and wood block paving. Petition was received asking that asphalt pavement be laid on East Broadway from South Carroll to High Sts. It was filed for April 1.

**Missouri Valley, Ia.**—Council at recent meeting decided that all new paving to be put in this year is to be 4-in. brick block paving bituminous filler.

**Topeka, Kan.**—Contracts will be let shortly for about \$165,000 worth of paving.

**Whitesburg, Ky.**—Harlan county voted Feb. 12 in favor of bond issue of \$250,000 for good roads.

**Jennings, La.**—At mass meeting held recently about 20 citizens of the parish were appointed by police jury to make recommendations with reference to calling election for good roads. It was recommended that police jury call an election to be held at general election April 18 for purpose of issuing bonds in amount of \$500,000 to be used in graveling roads. It is opinion of some police jurors that bond issue of \$700,000 can be issued, and it is more than likely that larger issue than was recommended by committee recently will be asked in ordinance calling for election.

**Palmer, Mass.**—Three thousand two hundred dollars was appropriated for purchase of steam roller by a committee consisting of H. W. Brainard, D. W. Dillon and D. F. Bodfish.

**Laurel, Miss.**—See "Sewerage."

**St. Louis, Mo.**—Three million dollars good roads bond issue on which St. Louis county voted Feb. 15 was carried by a vote of approximately 8,000 for to 1,300 against proposition.

**Springfield, Mo.**—Residents in Buck Prairie Special Road District, near Marionville, at an election authorized bond issue of \$40,000 for construction of permanent highways.

**Camden, N. J.**—Bids were opened Feb. 21st for Belgian block on 6-in. concrete foundation as follows: W. Penn Corson, 506 Haddon Ave., at \$2.75 per sq. yd.; Aaron Ward & Son, 524 Trenton Ave., at \$2.83 per sq. yd., and Kelly-McFeeley Co., 432 Market St., at \$2.96 per sq. yd. A. L. Sayers is Street Commissioner.

**Whitney Point, N. Y.**—Almost unanimous approval was expressed for proposition to bond village to secure funds for paving Main and Collins Sts. at taxpayers' meeting held Feb. 16. Brick paving is proposed for Main St. and bituminous macadam for Collins St. Engineers stated that cost of the proposed improvements would not exceed \$18,000. This figure includes cost for curbs and gutters.

**Brookfield, O.**—Town contemplates improvement of many roads at estimated cost of \$50,000.

**Dayton, O.**—County commissioners plan to order paving on more than 9 miles of county highways. Proposed paving plans include following: Dayton-Eaton pike, 2 miles west from present terminus of brick road, \$40,000; South corporation line of West Carrollton to north corporation line of Miamisburg, 1.3 miles, \$26,-

000; south corporation line of Miamisburg, 1 mile, \$20,000; Philadelphia road to west line of Harrison township, 1.4 miles, \$25,200; Catalpa road to Wolf siding, 1.5 miles, \$30,000; from Stop 10 on the Dayton & Troy traction line northward, 1 mile, \$20,000; from Vandalla, 1 mile north, \$20,000.

**Eaton, O.**—Council considers passing ordinance for paving on Barron St.

**Salem, O.**—City Engineer French submitted to city council Feb. 15 two sets of plans and estimates for improvement of West Dry St. from east line of South Howard St. to west line of Depot St. Brick with concrete base and stone curb will cost \$3.27 per foot frontage, and brick with sand cushion is estimated to cost \$2.77 per foot frontage. Estimates were referred to street and alley and sidewalk committee for recommendation as to kind of paving to be put down. According to estimate submitted sanitary sewer on Dry St. will cost \$1.75 per ft. frontage.

**Jackson, Pa.**—Commissioners have announced their intention of appropriating sum of \$20,000 for construction of roads in East Taylor and Jackson townships. Commissioners reached the decision following conference with officials from both townships.

**Lewisburg, Pa.**—Borough council has designated March 18 as date for special election, when question of proposed bond issue for \$20,000 will be decided by the voters of Lewisburg. Sentiment seems to be in favor of bond issue. Money is to be used for purpose of paving Market St. from Fourth to Eighth St.; North Second St., North Third St., North Fourth St., and for the construction of a storm sewer from Third St. through Cherry alley to the Susquehanna River.

**Boston, Tex.**—Commissioners have ordered good road improvement district to be formed in response to petition for same from citizens living in Hooks neighborhood. This will be followed by ordering of special election to vote bonds for financing road work.

**Corpus Christi, Tex.**—Mayor Miller in communication submitted to council at regular weekly session held Feb. 11, offered a suggestion that council issue call for election to determine whether or not bonds in amount of \$150,000 shall be issued for completion of bluff improvement work and paving of number of streets of city including streets that would connect Mesquite and North Broadway that are not already paved.

**El Paso, Tex.**—Sharp discussion of the merits of concrete and bitulithic for paving country roads occurred Feb. 14 when county commissioners met to consider paving of upper and lower valley roads. Charles S. Henning, county engineer, submitted report on road work done, together with recommendations. He estimated cost of building new pavement from Santa Fe crossing to Anthony to be about \$200,000 or \$14,000 per mile, and recommends bitulithic pavement. No decision was reached by commissioners.

**Mount Pleasant, Tex.**—Precinct 1 of Titus county Feb. 15 voted bonds to the amount of \$200,000 for good roads. This assures Mount Pleasant and Titus county Gulf-to-Paris and Jefferson national highways, already routed through here, and also eight permanent roads leading from county seat to precinct line.

**Norfolk, Va.**—Public improvement and finance committees in separate session Feb. 15, voted unanimously to recommend to city council bond issue of \$36,000 for improvements to certain streets in the plot of Westover Co., this bond issue to be taken care of by an increased assessment of \$200,000 agreed to by the company.

**Norfolk, Va.**—Representing East Side Improvement League, J. A. Derring urged improvements by paving with sheet asphalt of portion of three streets in high school section as follows: 17th St. from Monticello to Colonial Ave.; 18th St. from Granby St. to Omohundro Ave.; 16½ St. from Llewellyn Ave. to Omohundro Ave. Total estimated cost for this work is \$16,276 for six blocks. Matter was passed by temporarily. Paving of six blocks of Manteo St. from present paving north to 22d St. was urged. This was referred to city engineer for estimate. Representative of trucking industry asked committee to consider some improvement for St. Julian Ave., in vicinity of N. Y. P. & N. yards, so that truckers could get to yards. This work is estimated at \$4,104.

**Norfolk, Va.**—Council has been urged to appropriate \$27,500 for improvement of four old toll roads with concrete.